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Table of Contents

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ORIGINAL ARTICLES—	PAGE.	ABSTRACTS FROM CURRENT MEDICAL LITERATURE—	PAGE.
Symposium on the Hospital Problem, by DAVID EMBELTON, M.D., B.S.—		Pædiatrics	404
Introductory	381	Orthopædic Surgery	405
"The Reason for the Hospital and Allied Problems"	382	SPECIAL ARTICLES ON DIAGNOSIS—	
"The Community Plan"	384	Tumours of the Neck	406
"Contributing Schemes and Voluntary Insurance"	386	BRITISH MEDICAL ASSOCIATION NEWS—	
"Compulsory Insurance"	390	Scientific	408
"An Alternative Plan of Insurance"	393	Nominations and Elections	410
REPORTS OF CASES—		PUBLIC HEALTH—	
"Spreading Gangrenous Inflammation," by HUGH R. G. POATE, M.B., Ch.M., F.R.C.S., F.C.S.A.	398	Conference on Industrial Hygiene	411
REVIEWS—		CORRESPONDENCE—	
Orthopædic Surgery	399	Sterilization of Syringes and Needles	412
Congenital Talipes	400	The Treatment of Fractures	412
Morphinism	400	Radiology as a Specialty	413
NOTES ON BOOKS, CURRENT JOURNALS AND NEW APPLIANCES—		Renal Tuberculosis	413
Guy's Hospital Reports	400	OBITUARY—	
LEADING ARTICLES—		Claude Seccombe Browne	414
Accidents to Minors	401	BOOKS RECEIVED	414
CURRENT COMMENT—		DIARY FOR THE MONTH	414
The Chiasmal Syndrome	402	MEDICAL APPOINTMENTS VACANT, ETC.	414
Dental Sepsis	403	MEDICAL APPOINTMENTS: IMPORTANT NOTICE	414
		EDITORIAL NOTICES	414

Symposium on the Hospital Problem.

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INTRODUCTORY.

OWING to the rapidly changing social and political conditions of the twentieth century, much that is traditional is giving way to reform. This perhaps is nowhere more obvious than in the practice of medicine. Lyman Wilbur, former President of the American Medical Association, writes thus:

The practice of medicine can only be fully understood by those who have lived it and yet unless the profession stirs itself, great changes in medicine will take place through the instigation and pressure of outsiders. The golden thread of human understanding and of close per-

sonal relations between doctor and patient may be left out of the new social fabric which is being woven right under our eyes.¹⁰

The same problem that confronts the medical profession in America has for some years disturbed the minds of those who interest themselves in and aim to guide wisely the medical destinies of Australia. With the object of creating a clearer conception of the circumstances, obligations and possibilities of the existing situation in Australia, this symposium of five short articles has been prepared:

- I. The Reasons for the Hospital and Allied Problems.
- II. The Community Plan.
- III. Contributing Schemes and Voluntary Insurance.
- IV. Compulsory Insurance.
- V. The Outline of a Suggested Alternative Plan.

I. THE REASON FOR THE HOSPITAL AND ALLIED PROBLEMS.

Health is the most important asset of every person. It is the foundation of efficiency and happiness. Upon its maintenance prosperity rests. Normally one-quarter of the poverty that exists is directly due to sickness.⁽²⁾ The satisfactory provision, conduct and maintenance of those agencies which protect and promote the health of the nation are of great importance to everyone on both individual and national grounds.

Not hospitals alone, but the many cooperating agencies conducted and maintained efficiently or inefficiently, constitute what has been termed the "hospital problem."

The public hospital system is only part of the whole machine for the treatment of sickness. It can be regarded only in proper perspective when viewed as a part of the whole organization. Hospital "service" and finance cannot be reorganized without the provision of adequate service in the homes of the people. It is upon the efficiency of this latter service that the demands on and solvency of hospital service must depend.

At the end of the financial year⁽³⁾ 1928-29 the accumulated deficit of the public hospitals in Victoria was £113,461; £42,469 of this was due to excess of expenditure over income during the year 1928-29. This deficit is still increasing.

The problem that exists in Victoria is prevalent throughout the Commonwealth and overseas.

Owing to the stringency in the finances of the States and Commonwealth, the stagnation of business and the prevalence of unemployment, a more critical period lies ahead. While these exigencies have recently contributed to the present situation, they have not created it. The cause for the present crisis is less ephemeral. There is a more abiding reason.

The situation, as it exists in Melbourne, is taken as an example of the conditions prevailing elsewhere.

Melbourne contains one million people. For a number of years the percentage of the population making use of public charity has been increasing. More than 40% of the total population, when requiring in-patient treatment, now gain admission to public hospitals. If we consider only the industrial suburbs, which constitute two-thirds of Melbourne, 50% of the in-patient hospital relief is provided by public hospitals.⁽⁴⁾

More than 95% of the total patients admitted, while in public hospitals, pay each less than £2 per week or nothing towards their maintenance which costs the hospital £3 to £4 per week. Medical service is rendered in the out-patient departments of hospitals to an extent equivalent to treating 25% of the total population. Of the people (in Melbourne) 25% are in receipt of benefits from friendly societies which pay £1 *per annum* to the doctor for medical service rendered to a man, his wife and

children (boys up to sixteen years, girls up to eighteen years). This service is exclusive of midwifery and surgery. There are also baby welfare centres, school medical examinations, dental clinics, district nursing societies, tuberculosis bureaux and the Children's Welfare Department which provides medical attendance for 18,000 children.

This amount of free and cheap service has not, however, satisfied the requirements of the people. Further demands for public hospital service, for more beds and for more money to support them are driving each successive State administration into greater difficulty.

The following considerations are generally accepted as a justification of the appeal for free service:

1. Serious sickness requires the intensive endeavour of many highly trained people, sparing no effort and no necessary expense, over a period, brief or prolonged, to save life.

2. That sickness experience may fall very heavily on one family and not upon another. An unfortunate wage earner may be unable to cope with the cost however thrifty he be or generous his attendants.

3. His wages stop when sickness comes and his dependants are reliant on his savings during his illness and convalescence.

These considerations make it most difficult to assess who are and who are not worthy claimants for free service. The situation, however, admits of very much closer scrutiny than this. It is certain that, given the same economic conditions, but more studied guidance, a larger number of those appealing for State and charitable assistance would be relieved of dependence and the great body of thrifty independent people could be released from the heavy anxieties which face them in providing for contingencies of sickness.

The ability of a breadwinner to meet the unexpected expenditure of sickness on behalf of himself or his dependants is determined by: (i) His earnings and savings, (ii) responsibility and spendings, (iii) public policy in regard to provision of facilities for the sick.

In every country wealth is not evenly distributed. Most of it is in the hands of a few. This may be of advantage to the community, as their accumulations are placed at the disposal of fresh industry and new enterprise, thereby creating fresh employment. In Australia, the distribution of wealth is more even than in other countries, yet 87.5% of the wealth is owned by 17.5% of the people (Knibbs⁽⁵⁾); 40% of the people have personal access to little or no tangible wealth⁽⁶⁾ and the remaining 40% are independent thrifty people of the middle classes who have difficulty enough in paying their own expenses. Of those who earn, 90% have incomes of less than £400 *per annum plus* allowances under income tax.⁽⁷⁾

Ability to pay depends on not only earnings but responsibility. Of those who earn, 8% support 20% of the population;⁽⁸⁾ 40% of the earnings support 18% of the population (the latter are single wage earners without dependants). Between these ex-

tremes various ratios of income to responsibility exist. It is obvious where responsibility is heaviest, so is sickness and ability to provide is least.

Spending.—The time payment system, applied to the purchase of a necessary home, was a means of commendable thrift. It has been applied, however, since the war particularly, to the purchase of expensive furnishings, motor cars and other things which are beyond the reasonable aspirations of many. It has rendered many of the purchasers unable to meet their just obligations or to maintain their independence.

Public Policy.

Previously it was mentioned that 87.5% of the wealth was owned by 17.5% of the people. Only two-fifths of the adults over fifteen years of age who die, leave any assets for probate and administration and 25% of these have £300 or less; that is, 60% of the community have no accumulations of wealth worth mentioning.⁽⁹⁾

Wage and salary earners constitute two-thirds of the breadwinners and support about two-thirds of the community.⁽¹⁰⁾ Of wage and salary earners, 95% have incomes of less than £300 *per annum*.⁽¹¹⁾ Many who are employed on their own account are in a similar position.

The ability of 60% of the community to pay for medical and nursing attention depends on willingness and not on wealth. Many of the wage and salary earners and others have the basic wage or less for income. The basic wage is determined on the assumption that the basic wage earner is entitled to the provision of the necessities of life and since inadequate provision is made in the basic wage for medical and nursing attention⁽¹²⁾ (four and a half pence per week⁽¹³⁾), such a wage earner can reasonably contend that this service will be "otherwise" provided. No hospital almoner can confidently turn these people away when they seek public hospital assistance. Thus the public hospitals have for many years been growing⁽⁴⁾ more rapidly than the population. As a result of this, in 1922 a clause in the *Charities Act* was passed in Victoria and it gave public sanction to the evident appropriation of the public hospitals to the service of an increasing percentage of the population as well as to the indigent⁽¹⁴⁾ (see also New South Wales *Public Hospitals Act*, Number 8, 1929, Part VI, Section 30). It permitted the hospital to collect fees from patients according to their means up to the full cost of maintenance. Thus the growing popular use of public hospitals was ratified and the deficiency in the basic wage rectified by a public medical and nursing service being otherwise provided.⁽¹¹⁾

The poorer sections of the community are alert to enjoy the advantages of such economy. Their ability to pay is difficult to establish or dispute. When admitted to public hospitals, they consistently pay less than the cost of maintenance. In consequence this service, growing more rapidly than the population, creates a public obligation which charitable appeals and Government grants have not the

capacity to meet. Broadly speaking, there seem to be six factors which cooperate to create the "hospital problem":

1. Basic wage and its distribution independent of responsibility.
2. Uneven distribution of wealth.
3. Time payment system.
4. The uneven incidence of sickness experience.
5. The rising cost of medical care.
6. Public policy.

To surmount the difficulties which are almost wholly financial, diverse remedies have been suggested and they involve the future of the chief executive officers of hospitals—the professions, medical and nursing. The ways in which the financial difficulties may be overcome by those responsible are:

1. Increase of Government subsidy to provide more free beds or to endow intermediate beds up to the full cost of maintenance.
2. Further charitable appeals.
3. Increase the amount of nursing done by the trainee nurse.
4. Admit paying patients to public hospitals and so apply the profits now made by nursing homes to the maintenance of those who pay less than the cost of nursing in public and intermediate beds.
5. Apply the usual medical fees from private patients to maintenance of the public hospital and let the hospital provide the doctor, that is, utilize the medical fees. Paragraphs 4 and 5 constitute the community plan.
6. Voluntary insurance (contributing schemes).
7. Compulsory insurance.

In regard to method 1, State governments find very great difficulty in meeting their present undertakings and it seems quite unlikely that they will consider favourably any new obligations.

In regard to method 2, charitable appeals have been exploited to the utmost according to the Victorian Charities Board. This offers, therefore, no new source of revenue.⁽¹⁵⁾

In regard to method 3, difficulty already exists in supplying sufficient trainee nurses to conduct existing public and intermediate hospitals. Further extension of this system will quickly overstock the avenues of employment of nurses and will cause an ebb in the number of applicants applying for admission to training schools (see Appendix).

Appendix.

A deputation waited on the Chief Secretary of Victoria, Dr. Argyle, in October, 1926, protesting against the longer training of nurses which intensified the difficulty of securing trainee nurses to conduct the nursing. In reply to that deputation, Dr. Argyle said:⁽¹⁶⁾

The city hospitals have no long waiting lists of nurses for the reason that we do not pay nurses enough and that other avenues of female employment more attractive from the financial point of view are now open to girls.

The difficulty of many of the hospitals, both metropolitan and rural, in securing sufficient trainees was at that time and has been subsequently expressed in the daily press.

In May, 1927, at the Annual Meeting of the American Medical Association, Washington, D.C., the Committee on the Cost of Medical Care was established. It is comprised of forty-three members from social, economic, financial and professional walks of life. Twenty-three members are medical and it has set itself a five years' programme of study with 500,000 dollars at its disposal. In a publication, November, 1929, by graph and otherwise it is shown the increases in hospital beds and registration of trained nurses, 1900 to 1928, are parallel and both have increased much more rapidly than the population. Presumably the growing hospitals demanded increasing number of trainees which resulted in increased numbers of nurses registering annually.

The Committee, seeking to know if there were too many nurses, wrote to 353 nurses' registries. Three hundred and twenty-five replied that they did not want any more nurses encouraged to move to their cities. The report continues:

There is evidence to suggest that:

- (1) Hospitals are increasingly able to fill their own needs for specials from their own alumnae.
- (2) Outside registries which have existed largely by catering for hospitals, are finding it difficult to place the nurses on their lists.
- (3) Enrolments are rapidly growing.
- (4) Some hospitals are no longer able to keep their own alumnae busy.
- (5) These conditions seem to be most acute in the largest cities. There are five times as many applicants for public health positions than there are vacancies available.

It would seem the position generally in America is much the same for the graduate nurse as in Victoria—a market becoming overstocked by excessive utilization and graduation of the trainees with a tendency for prospective trainees to seek other avenues of employment. This method of reducing the cost of nursing cannot be further exploited.

References.

- ⁽¹⁾ Address, Californian State Medical Association, *Californian and Western Medicine*, July, 1928.
- ⁽²⁾ Morgan: "Public Relief of Sickness."
- ⁽³⁾ Charities Board Report, Victoria, 1929.
- ⁽⁴⁾ D. M. Embelton: "National Insurance Nationalization and the British Medical Association," *THE MEDICAL JOURNAL OF AUSTRALIA*, January 19, 1929, page 71.
- ⁽⁵⁾ G. H. Knibbs: "Census of Wealth," 1915.
- ⁽⁶⁾ D. M. Embelton: "The Hospital Problem of Melbourne and the Commonwealth," *THE MEDICAL JOURNAL OF AUSTRALIA*, December 3, 1927, page 774.
- ⁽⁷⁾ Income Tax Commissioners' Eighth and Ninth Reports.
- ⁽⁸⁾ D. M. Embelton: "The Hospital Problem of Melbourne and the Commonwealth," *THE MEDICAL JOURNAL OF AUSTRALIA*, December 3, 1927, page 775.
- ⁽⁹⁾ Victorian Year Book, 1927-1928, pages 271 and 340.
- ⁽¹⁰⁾ National Insurance, First Progress Report, page 6; National Dividend, Sutcliffe, page 49.
- ⁽¹¹⁾ *THE MEDICAL JOURNAL OF AUSTRALIA*, May 21, 1927, page 764.
- ⁽¹²⁾ "Letters Patent of Royal Commission on the Basic Wage," 1919-1921, Parliamentary Papers, General Session, 1920-1921, Volume IV.
- ⁽¹³⁾ Forty-eighth Annual Report on Friendly Societies of Victoria, 1926, by Victorian Government Statist, page 9 *et sequentes*.
- ⁽¹⁴⁾ *Hospital and Charities Act*, Victoria, page 39, Section 73, 1922.
- ⁽¹⁵⁾ Annual Report, Charities Board, Victoria, 1927, page 1.
- ⁽¹⁶⁾ *The Argus*, October 8, 1926.

II.

THE COMMUNITY PLAN.

Neither Government grant, charitable appeals nor further exploitation of the trainee nurse offers any solution of the problem stated in the previous article. Other means of providing revenue have been explored. Reports from abroad seemed to indicate that the community plan of conducting hospitals offered a solution of professional and financial difficulties.

The public hospitals of Victoria, and particularly those of Melbourne, have for some time past been drifting into debt. Suitable accommodation for paying patients in many circumstances is not available. Strong representations were made to the Chief Secretary of Victoria in 1929 that beds for private patients (paying beds) in public hospitals would solve the difficulty. On May 29, 1929, new regulations under the *Charities Act* of Victoria were gazetted.⁽¹⁾ These regulations gave authority for the establishment of accommodation for private and intermediate patients within public hospitals under certain prescribed conditions, the substance of which is as follows:

1. A subcommittee of the hospital committee shall manage the part or parts of the hospital set apart for paying or intermediate patients.
2. Separate accounts in detail of the private and public parts of the hospital will be kept and annually audited.
3. Any credit balance of the private part at the end of the year will, except with the approval of the Charities Board, be paid in full to the treasurer of the public part for general purposes.
4. None of the funds, charitable or otherwise, of the public part shall be at the disposal of the private part and any services, such as heating *et cetera*, borrowed by the latter from the former shall be paid for.

The intermediate patient, according to the regulations, is one who pays in part for hospital accommodation and medical and nursing relief. Some source of revenue must be found to cover the difference between the intermediate nursing fees paid by the patient and the full cost of nursing.

The public hospital will provide no assistance, will accept no responsibility and expects to derive some financial advantages. No assistance will be forthcoming from the Government or the over-exploited trainee nurse, but from profit made from the private patients nursed in competition with the private nursing homes.

Nursing in Melbourne, if trained nurses are employed and rent paid, costs four pounds a week per patient at least. In New Zealand a committee of business men determined it would cost £8 8s. a week to render in a public hospital with trained nurses a service equal to private nursing homes if all pay beds were kept occupied.⁽²⁾

The Charities Board of Victoria expressed its appreciation of these regulations in its Annual Report,⁽³⁾ June 30, 1929, in the following terms:

It can be said that since the formation of the Board (1922) there has been no decision which is more acceptable or of greater value to the hospital system of Victoria and without being unduly optimistic the Board is of the opinion that the benefits to the public and to the finances of the institutions will be substantial.

These new regulations present a new source of revenue for the hospitals.

Up to the present time the medical profession has always worked upon the community plan—the fees from the private patients paying for service to the public free patients—but the nursing of public free patients has been independently financed. Under these arrangements increasing numbers of people have found the cost of medical care too great and have sought sanctuary in public hospitals.⁽⁴⁾ The public hospitals to rectify their finances thereby disordered, now have authority to join in the community plan and the resources of the private patients will be further taxed to provide for existing public hospital nursing service as well as the free medical service. Since nursing is no cheaper in public than in private institutions, since the assistance of the trainee, the Government or charitable gift cannot be further conscripted, the only source of revenue available for exploitation is the available medical fees. The white collar class will look to the public hospital, open to all, to provide them with cheaper service. The public hospital will look to the white collar class to provide them with full expenses and revenue. Each will gratify the other at the expense of the medical service. I would draw the attention of those who might regard this statement as hypothetical, to the hospital policy of the British Medical Association in England as defined in *The British Medical Journal Supplement*, April 19, 1930, Appendix VII, Sections 1, 6, 7, 8, 9, 10, 11, 12, 28, 29 and 42 wherein this system is set out. Sections 1, 7, 9 and 10 indicate only 5% of the population will be private patients.

To state the problem in a slightly different way, the population is roughly grouped as follows:⁽⁴⁾

1. Twenty *per centum* who are wealthy and can pay private fees.

2. Forty *per centum* who are intermediate white collar class and are seeking relief from the heavy and increasing cost of adequate medical care.

3. Forty *per centum* who are now enjoying free medical service in public hospitals and paying only a portion of the cost of maintenance in spite of all reasonable inducements to pay more.

After the establishment of any community plan, probably about half of group 1 will be nursed in private nursing homes which for many patients can provide a service at least equal to a public hospital at a cost the same or less. From the remaining 10% the profits made, after expenses are paid, will not be very great and will help to cover the deficiency created by group 3.

Group 2 expect a better service than in private nursing homes at a reduced cost. This service the public hospitals cannot provide, unless they exploit

a new source of revenue. That revenue is to be found in the medical fees which group 2 now pay.

Group 2 will pay to the hospital a comprehensive fee which will cover the full cost of nursing and medical fees. The medical profession will be paid by the institution through the agency of a staff fund or as salaried officers of the institution; this is the policy developing in England and approved by the Home Association.

The Victorian Branch of the British Medical Association disapproved of this policy in May, 1929, and refused to endorse the establishment of "pay beds" in public hospitals in Melbourne under the new regulations.

Their objection would be unavailing were their reasons purely selfish, but many feel convinced that the most cherished possession of the patient is the personal relationship established by the free choice of doctor. This depends on the maintenance of freedom of contract between the doctor and the patient.

In a system of institutionalized medical service the doctor becomes the servant of the institution and not of the patient. Efficiency gives way to seniority. There is a loss of competition and initiative. Remuneration will be fixed for an unrestricted service. Salary will reduce all to a common level and will be reduced to the lowest level possible for purposes of economy. This will not maintain good service. The Victorian Branch of the British Medical Association felt that a more satisfactory solution of the problem could and should be found and therefore refused to endorse the application of the community plan to the public hospitals of Melbourne.

In many ways the progress of events in one State of the Commonwealth influences the activities in another. We are led to believe from various sources that since the passage of the *Public Hospitals Act* in New South Wales in March 28, 1929, and the establishment of the Hospitals Commission that the policy of pay beds in public hospitals has been endorsed by the New South Wales Branch of the British Medical Association.

The Act Number 8/1929, Part VII, Sections 35 and 36⁽⁵⁾ authorizes the provision for paying patients in public hospitals and Section 36 reads:

1. No medical practitioner shall except in the circumstances and under the conditions prescribed charge a patient who is under treatment by him in a hospital with any fees in respect of the treatment.

2. Save in circumstances prescribed by the regulations no contract between a patient and a medical practitioner for payment for such treatment shall be enforceable.

Thus the hospital or commission will control the resources of paying patients and can permit such distribution as it chooses.

Instead of providing for the present public hospital patients by taxing the resources of those patients now outside of public charity, it seems to us to be preferable to devise means whereby the present public hospital patients can pay for services rendered to them.

The idea is current that if sufficient intermediate hospital accommodation (cheap nursing at less than cost) could be provided, then the hospital problem would be solved.

Inquiry leads us to a different conclusion. Richmond (Melbourne) is a suburb of 42,000 people. While 250 Richmond residents were admitted to "Epworth" and "Bethesda," efficient intermediate hospitals and the only hospitals in Richmond, 2,100 patients were admitted to public hospitals in Melbourne in a similar period. Though intermediate beds were available, Richmond residents did not use them because they were not willing or were unable to pay the medical in addition to the intermediate nursing fees.⁽⁶⁾ Figures given by the Private Hospitals Association of Victoria confirm this view. Their available intermediate beds were largely unused. This leads us to believe that the provision of an increased number of intermediate beds will not obviate the demand for further free medical service.

It is concluded that when public hospitals are opened to all classes, influenced by the rising cost of medical care, gradually 80% of the people will pay what they can afford to the hospital for comprehensive medical and nursing service provided by the hospital.

We are confident a more satisfactory and practical solution of the problem is possible.

References.

⁽¹⁾ *Victorian Government Gazette*, No. 56, May 29, 1929, page 589.

⁽²⁾ *The British Medical Journal*, July 14, 1928, page 57.

⁽³⁾ *Charities Board Report*, June 30, 1929, page 5.

⁽⁴⁾ D. M. Embelton: "The Hospital Problem of Melbourne and the Commonwealth," *THE MEDICAL JOURNAL OF AUSTRALIA*, December 3, 1927, page 776.

⁽⁵⁾ Act Number 8/1929, New South Wales, Part VII, Sections 35 and 56.

⁽⁶⁾ D. M. Embelton: "National Insurance Nationalization and the British Medical Association," *THE MEDICAL JOURNAL OF AUSTRALIA*, January 19, 1929, page 76, Appendix A, Section 4.

III.

CONTRIBUTING SCHEMES AND VOLUNTARY INSURANCE.

In America the position seems very unsatisfactory, both from the professional and public aspect and no orderly plan of reconstruction is within sight. In England compulsory national insurance provides for domiciliary service of wage earners, but not their dependants; and institutional treatment is provided by municipal and voluntary hospitals and private nursing homes. The British Medical Association in England, in offering a plan of reconstruction to the public, would have preferred compulsory insurance against institutional risks for wage earners and their dependants,⁽¹⁾ but this was found impracticable by the National Insurance Commission, 1926, as funds and hospital accommodation were not available.

In 1920 the voluntary hospitals in England were in financial difficulties. A commission under Lord Cave⁽²⁾ was appointed to examine the situation.

During the war contributions had increased by 68% and expenditure by 138%. The combined voluntary hospital deficit was £611,087. After four years this was converted into a credit of £1,141,054. This was effected by the expansion of contributing schemes. The public hospitals were originally supported by the rich as havens for the poor, but gradually they are being appropriated, with public consent, to the service of all classes of the community: (i) by the poor, (ii) by approved societies under national insurance to provide hospital and specialist benefit for insured persons, (iii) under contributing schemes for the industrial and middle classes and, finally, (iv) pay beds in these hospitals for the rich. The first and last groups are small; Groups (ii) and (iii) constitute the great part of the population. The main support of voluntary hospitals is now contributory schemes.

The principle of contributory schemes⁽³⁾ which have been in operation in England since 1873, is that the wage earners on behalf of themselves and their dependants make a voluntary weekly contribution to a scheme which entitles them to (a) hospital treatment or (b) money to pay for it when required.

In regard to hospital treatment, the scheme promises treatment to the contributors in exchange for contribution. The hospital receives money from the scheme in exchange for treatment. There is an understanding but no contract—the hospital will provide the treatment for the money. The amount of contribution from the scheme to the hospital depends on the solvency of the scheme. The hospital, however, by virtue of its function and of public opinion, is bound to render full service to full capacity, whatever may be the payment from the scheme.

The contributor is relieved of indignancy and obligation. He is no longer accepting charity, but a service which he has paid for through the scheme. Thus the hospital is placed at the service of an increasing percentage of the population. It becomes a public utility and not a charity.

Payment by the scheme of cash benefit when hospital service is required is not the usual practice, but it may be undertaken. Experience in Melbourne shows that intermediate beds costing between two and a half and three guineas a week do not solve the hospital problem.⁽⁴⁾ Any cash benefit payable must be sufficient to cover at least in part also medical fees, otherwise to avoid medical fees the patient chooses to go to a public hospital. With contributory schemes in operation patients are more likely to do this because they are no longer accepting charity. The hospital service has been paid for by the scheme.

The services available to contributors to the scheme then are: (i) Hospital service, including medical treatment, (ii) hospital service without medical treatment. The choice of service depends on ability to pay for medical treatment. Ability depends on resources on the one hand and family responsibility on the other. In so far as 60% of the Australian population are concerned⁽⁵⁾ (and more

than 60% in England⁽⁶⁾⁽⁷⁾) ability to pay for medical service depends on willingness and not upon wealth. If such seek admission to a public utility hospital, no almoner can safely turn them away or tax their meagre resource for medical fees against their wish. (See National Insurance Report, Income Tax Reports, Victorian Year Book, 1927-28, page 340, "Census of Wealth," 1915, Knibbs.)

Amount of Benefits as Payments by the Scheme is Optional.

The extent of payments to the hospital for each patient receiving relief depends on (a) incidence of sickness amongst contributors and dependants, (b) the amount of contribution per week per wage earner.

It is universal experience that voluntary insurance schemes to remain solvent must impose age, health and occupational restrictions upon admissions to the scheme to avoid the liability of middling and poorer risks, otherwise they must impose a high contribution which the better risks may not agree to and the poorer cannot pay. Contributory schemes have no such restrictions; they enrol all risks. They have a low contribution for the sake of popularity and the poorer people. As a result the schemes cannot pay adequately for the benefits owing to a low contribution and high incidence of sickness. There is a tendency for the scheme, when established, to multiply the benefits in addition to hospital benefits—surgical appliances, trusses, convalescent homes, ophthalmic clinics, glasses—without increased contribution.

Money is received from the scheme by the hospital often at the expense of previous sources of revenue. Charitable gifts from employers and firms and patients' contributions diminish. Thus the money provided by the scheme is not always new money. The hospital has to accept what payment an insolvent scheme offers or it will get no payment at all. The service of the hospital is obligatory up to full capacity. The payment is optional and experience shows it is usually below the cost of maintenance.

Concrete Example of a Scheme.

Sir Napier Burnet reviewed 105 schemes in England in 1923. The most virile of them, the Hospital Savings Association, is here given as an example.⁽⁸⁾⁽⁹⁾

It was established under the patronage of King Edward's Hospital Fund in 1923. Calls on members are not to exceed 5s. and total calls in one year are limited to £1. The number of members is unlimited. Each member agrees to contribute £2 2s. if the association is wound up.

The objects of the scheme are:

1. To organize a system of continuous subscription from eligible members to support hospitals.
2. To relieve contributors or their dependants from hospital charges when under treatment.

3. To repay to hospitals the cost of maintenance in hospitals of contributors and their dependants.

4. To make grants or loans to hospitals.

5. To maintain facilities for hospital treatment for contributors and their dependants.

Cooperating hospitals undertake that there will be no inquiry by the almoner as to the financial suitability of a contributor seeking admission. The hospital determines who is or who is not suitable on medical grounds.

The scheme is confined to those whose incomes do not exceed £4 a week for a single man, £5 a week for a married man without children, £6 a week for a married man with children under sixteen years.

Contributions are collected in factories and workshops and paid to a central organization. The contribution is twelve shillings per wage earner *per annum* paid in advance or thirteen shillings per wage earner *per annum* paid at threepence per week.

The benefits of the scheme are as follows: The contributor and his dependants (including wife and children under sixteen years, parents, grandparents, brothers and sisters under sixteen years if dependent on the contributor) receive hospital treatment. No inquiry is made by the almoner on admission. No payment is made by the contributor while he is in hospital to either the hospital or the scheme (Hospital Savings Association).

Wage earners under eighteen years can join for twopence a week or eight shillings *per annum*. Dental treatment and dentures are provided. Benefits begin three months after joining the association. Contributors over the income limit pay £1 *per annum* in advance or £1 1s. *per annum* at one shilling and eightpence per month.

The benefits include: (i) A refund of £10 for any completed hospital expenses; (ii) dental, dentures, surgical appliances, convalescent home. The basis of contribution to hospitals when the scheme began, was: In-patient, £2 12s. 6d. per week; out-patient, 7s. 6d. per person. These payments have not been maintained and have been reduced to four shillings a day per patient, paid quarterly, and a final yearly dividend, and for out-patients the average cost to the hospital.

The payment in 1929 averaged six shillings a day per in-patient, including the final dividend, and nothing for out-patients.

The growth of the scheme is shown in the accompanying table.

Table showing Growth of Hospital Savings Association Scheme.

Date.	Groups.	Contributors.	In-Patients	Out-Patients.
July, 1924..	764	62,300	—	—
July, 1925..	2,000	160,162	2,300	32,207
July, 1926..	3,182	267,000	11,007	61,939
July, 1929..	7,000	652,000	31,000	141,000

Money collected was £320,000. Payments to hospitals were £193,000. Benefits now include treatment at ophthalmic clinics. Beds provided were approximately 1.25 beds per thousand insured

persons. Note, the probable requirement of the population, exclusive of infectious disease, is five beds per thousand insured.

Success of English Schemes.

There are three reasons for the success of schemes in England:

1. The appeal of charity. (This is not relied upon very largely in England and the industrial contribution to the Lord Mayor's Fund in Melbourne has not grown at all under this stimulus.)
2. Promise of hospital treatment when required.
3. A share in the management of the hospital.

Under the influence of schemes in England the control of voluntary hospitals is changing.⁽¹⁰⁾ The power of the governors is diminishing. The hospitals are ceasing to be voluntary. Control in the management of the hospital is regarded as one of the chief attractions of the scheme.

Control is effected in two ways: (i) Representation on the hospital board, (ii) control of the funds which are the main support of the hospital.

Sections 4 and 52 of the Victorian *Charities Act*, 1922, and Sections 21 and 40 of the New South Wales *Hospital Act*, 1929, provide for schemes and enable contributors to share in the election of the management. The management determines and interprets the rules governing admissions.

In Newcastle, England, the schemes govern the infirmary and admissions are not restricted solely to the poorer classes (see appendix to this article).

Scope of Schemes.

Branch Councils of the British Medical Association and hospital staffs in Australia may be asked to approve of the establishment of contributory schemes from the aspect of income limits. At the risk of reiteration it might be helpful to point out:

1. Ninety-five *per centum* of wage and salary earners who constitute two-thirds of the bread winners, have incomes of less than £300 *per annum*.⁽¹¹⁾
2. Ten *per centum* of the people (bread winners) have incomes over £400 *per annum plus* allowances (Income Tax Report).
3. Only 40% of adults over sixteen years who die, have assets for probate; 25% of these have less than £300. Some of this may not be tangible wealth, but equity in cottages.⁽¹²⁾
4. Eighty-seven and a half *per centum* of the wealth is owned by 17.5% of the people (Knibbs).

From the above it is deduced that while 40% of Melbourne now use public hospitals for in-patient nursing, when these institutions cease to be charities, 60% of the people may enjoy public hospital service and free medical care.

The Present and Future Position of the Medical Profession in England.

Greater London contains 15,000 voluntary hospital beds, 20,000 poor law beds.⁽¹³⁾ The latter are transferred by the *Local Government Act*, 1929, to the municipal councils and are changing into

efficient municipal public hospitals. In hospitals, both voluntary and municipal, people pay according to their means. Taking England as a whole, there are 50,000 voluntary hospital beds and 100,000 poor law infirmary beds, the latter being transferred to the municipalities. In evidence given before the Pay Beds Committee of King Edward's Hospital Fund in London in 1928 it was submitted that the population of Greater London, 8,000,000 people, was composed of five and a half millions industrial class, two and a half millions middle class and one hundred thousand wealthy.⁽⁶⁾

The Council of the British Medical Association in England states that the public hospitals "have become a highly specialized and complex service to which four-fifths of the population look for help and where the community as a whole claims as a right services which can only be rendered by a great organization or its dependent branches."

The Association classifies the claimants for treatment as 10% to 15% indigent requiring charitable aid; 80% to 85% legitimately provided for by some contributory scheme or agency; 5% (not more) able to pay for medical and nursing services.

The Council of the British Medical Association in its policy endorses the practice of remuneration of staffs, visiting or resident, by a fixed salary or fixed payment for responsibility and payment of staffs of voluntary hospitals on a like basis.⁽¹⁴⁾

In Section 49 of the proposals made by the Council of the British Medical Association⁽¹⁵⁾ it is stated:

The Association would have preferred that the insurance against institutional risks should be through an extension of the National Health Insurance System for all insured persons and their dependants, but it has been found that the difficulties were insuperable, as was the opinion of the National Health Insurance Commission, 1926.

The Association is strongly of the belief that insured persons and their dependants as well as large numbers of uninsured persons of moderate means can only get institutional treatment and pay for it as most of them would desire to do, by some system of insurance. And as a national system is not available, advantage must be taken of a satisfactory contributory scheme such as exists now in very many areas. Most of these would require radical alteration because at present few make provision for payment for medical treatment received.

This indicates that endeavours will be made to include in the scheme definite provision for medical treatment received. The Association for some years has maintained that portion of payments of patients to voluntary hospitals, whether paid by massed contributions or otherwise, should be paid into a fund to be placed at the disposal of the medical staff of the hospital—staff fund.

The Pay Beds Committee of King Edward's Hospital Fund (which is the ruling hospital authority in London) made the following recommendation in 1928.⁽¹⁶⁾

That the general wards of the voluntary hospitals should be thrown open to those of moderate means on the same terms and conditions as for the sick poor, no payment for medical treatment being allowed. The wealthy should be catered for in pay rooms, private wards and attached nursing homes.

And: (17)

As a general principle no physician or surgeon should receive a fee till the full cost of maintenance has been paid.

Contributory schemes promise the contributor free hospital service and no inquiry by the almoner, and the scheme does not pay the full cost of maintenance, so there is nothing left for medical staffs. The schemes are voluntary. No statute can raise their contribution or their payments. The establishment of the staff fund is impracticable as a general principle and the staffs must seek payment direct from the institution served—institutionalization of the profession. The medical profession in Australia is faced with the establishment of contributing schemes to finance the public hospitals. The public hospitals must be maintained and if no alternative satisfactory plan is forthcoming to prevent the increasing deficit, contributing schemes will be established here, as in England, for that very purpose which they there successfully achieved.

If contributing schemes become properly established, the profession must:

1. Treat 60% of the population free of charge in public hospitals and consent to charge the remaining 40% high fees. Many of these latter are thrifty independent people who find difficulty at present in providing for sickness. If they are further taxed, they will seek to join contributing schemes and so swell the public hospital classes who enjoy free medical service.

2. Accept payment by the institution as in England.

3. Present now an alternative plan for public consideration.

Voluntary Insurance.

Voluntary insurance generally is usually effected through the agency of fraternal orders, trade unions, commercial insurance companies or establishment funds.

Fraternal orders hold a commanding position and carry 38% of this responsibility in Denmark which is a national example of voluntary insurance. (18)

Fraternal orders have the advantage of local administration which, combined with their system of visiting, tends to prevent malingering.

They have many disadvantages:

1. They are not devised for the advantage of bad risks and place restrictions on age, physical defects, risky occupations.

2. Their contributions are often too high for the deficient income class who most need protection. They are calculated to attract choice risks or those who are not wage and salary earners, and leave untouched a large section of poorer people and less physically fit who have become a social responsibility.

3. Their administration is not cheap, as often alleged. In Victoria it costs 19% of the contribution. (19) If any economy has to be effected by lodges, it frequently is done first at the expense of medical benefit.

Trade unions in Australia do not encourage contributions to any but industrial funds. Establishment funds are not encouraged by them, as such bind men to their employment and weaken militant action. (20)

Commercial insurance companies which undertake industrial insurance, are conducting extensive business in Australia. Generally small policies of £30 are undertaken. Of these policies 55% lapse within five years of commencement with great resultant waste. (21) Collection and administration cost 30% to 40% of the contribution. This has a bearing on the validity of voluntary insurance among the industrial population who do not join friendly societies. The annual loss in membership as the result of secessions from friendly societies is 6% of the total membership or 70% of the total initiations each year. (22) In America the cost of administration of these companies is 40% of contribution and 50 to 60 cents per dollar paid is returned to the policy holder. (15)

In Denmark voluntary insurance through fraternal orders is State aided up to one-third of its revenue. The insurance is open to all classes and undertaken by 30% of the population (1914). The disadvantages have already been pointed out. To obviate the financial difficulties, age and health restrictions were made more stringent. This defeats the purpose of the insurance. (18) It does not seem that any satisfactory comprehensive provision for national health services can be undertaken on a voluntary basis.

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- (3) J. F. Stone: *Loco citato*, page 217.
- (4) See Article II of this series.
- (5) See Article I of this series (published under "Public Policy").
- (6) *The British Medical Journal*, August 18, 1928, page 319.
- (7) *The British Medical Journal*, April 19, 1930, Supplement, page 151.
- (8) J. F. Stone: *Loco citato*, page 221.
- (9) *The British Medical Journal*, December 7, 1929, page 1081.
- (10) *The British Medical Journal*, July 26, 1924, Supplement, page 51, re Newcastle Infirmary.
- (11) National Insurance Report, *THE MEDICAL JOURNAL OF AUSTRALIA*, May 21, 1927, page 764.
- (12) Victorian "Year Book," 1927-1928, page 340.
- (13) J. F. Stone: *Loco citato*, page 9.
- (14) *The British Medical Journal*, April 19, 1930, Supplement, page 152, Sections 11 and 12.
- (15) *The British Medical Journal*, Supplement, April 26, 1930, page 174.
- (16) *The British Medical Journal*, August 18, 1928, page 320.
- (17) E. W. Fothergill: "Paying Patients in Voluntary Hospitals," *The British Medical Journal*, September 15, 1928, page 511.
- (18) Morgan: "Public Relief of Sickness."
- (19) Fifty-first Annual Report of Friendly Societies of Victoria, June 30, 1929, page 13.
- (20) National Insurance, First Progress Report, page 10.
- (21) National Insurance, First Progress Report, page 25.
- (22) Fifty-first Annual Report of Friendly Societies of Victoria, page 14.

Appendix.

In the Supplement of *The British Medical Journal*, July, 26, 1924, page 51, Dr. Pybus stated:

Firms to the Newcastle Infirmary gave £7,000 a year and all they subsequently did was provide an ambulance. Originally these donations were given as charitable donations, but now they were given with the object of providing treatment in case of accident. Working men had a majority representation on all committees. The Admissions Committee laid down that no matter what income a workman received (and some were receiving £400 to £500 *per annum*), he must be admitted. People often came to the hospital with medical ailments or accidents and insisted on being treated as subscribers. £44,000 out of £90,000 was subscribed by workmen.

The New South Wales Hospitals Act, 1929, Sections 21 and 22, lays down the conditions of nomination of subscribers who elect the management. Section 40 reads:

1. The regulations may provide for the establishment by agreement between employees and employers of industrial contribution schemes.

2.

3.

4. Persons who contribute to a hospital under any such industrial contribution scheme shall be deemed to be subscribers to the hospital and may be constituted by the regulations as additional classes of subscribers.

This opens the way for control of hospitals, the staffs, the pay beds and private patients by contribution schemes and workmen's committees. Some variation of Section 4 of the Victorian *Charities Act* would be necessary to render the control of the management so accessible.

IV.

COMPULSORY INSURANCE.

COMPULSORY insurance has been suggested and tried as a means of providing adequate medical service to the population. The spirit that prompts it as an ideal solution of the problem, is laudable, but wherever it has been tried, it has been found to be extremely unsatisfactory upon social, national and professional grounds. The widest experiment in compulsory social insurance has been conducted in Germany during the last forty years. It had its commencement in the voluntary clubs in the Prussian mines in the early part of the nineteenth century and was introduced as compulsory insurance in 1885 under Bismarck.⁽¹⁾

The insurance includes all work people by compulsion, with no age or health limits. The funds are provided and managed jointly by employers and employees under a government commission, two-thirds of the management being in the hands of the employees; societies created by various types of occupation, by plants, local and rural, organizations are admitted. Of the contributions, employers provide one-third *plus* the expense of excess of unexpected sickness; employees provide two-thirds. Contributions are based on a maximum, but there is no minimum wage limit. The benefits are cash and medical.

The cash benefit is half wages for twenty-six weeks with an optional increase by the fund of the amount and duration. Funeral benefit is an amount equal to twenty times the basic wage. Nursing

benefit is half sick pay for twelve weeks. Medical attendance, medicine, trusses, spectacles *et cetera* are included. Hospital treatment and half sick pay are provided if there are any dependants. Maternity benefit includes medical attendance, sick pay for ten weeks and an allowance.

In addition old age and invalidity insurance provides old age pension after sixty-five years and invalid pension. The societies manage their own funds and benefits. The Lupsiz Fund—183,000 members in 1910—has general medical attendance, 130 specialists and 24 dentists.

Doctors contract with the society either on a capitation or a point system.⁽⁴⁾ The latter means a certain portion of the funds is set aside for medical attendance.⁽⁵⁾ Each doctor indicates to the fund the number of visits paid to insured people in the quarter. The funds in the pool are divided by the total number of visits paid and the doctors are paid on the basis thus established for each visit. The societies endeavour to effect economy at the expense of the doctors and uniform payments and conditions have been so unsatisfactory that in thirty years there were 1,022 medical strikes.

The advantages of the system are as follows:

For the insured: (i) Medical attendance is assured to the poorer sections of the population. (ii) The community is protected against infectious disease. (iii) Free medicine and hospital treatment are provided.

For the doctors: It is easy to begin practice and some insurance doctors make large incomes.

Disadvantages are very great: (i) The natural relationship between the doctor and the patient is destroyed; the controlling influence of the society dominates the situation; the doctors are the servants of the society. (ii) Medical secrecy is destroyed.

There is overwhelming evidence to show that this system increases the amount of sickness and protracts convalescence.⁽²⁾⁽³⁾ Healing is much more rapid among those who have no social insurance upon which to rely.

Social insurance has become a source of income to the population; the waiting rooms of doctors are crowded with people seeking certification of sickness. The system is used not for obtaining health, but doles. It deprives the people of the will to be well and creates an army of hypochondriacs. It leads to a moral degradation of the people.⁽³⁾ It deprives them of the spirit of independence, self-reliance and thrift.

From the professional point of view it is a disastrous business.⁽²⁾ Many doctors unable to morally dominate importunate malingerers, for convenience certify them as sick.

The patients report to the doctor for the most trivial ailments, undeterred by any obligations or responsibility; they ruin the service which might be rendered to the really sick. Service becomes perfunctory and not careful. The doctor loses his professional self-respect and dignity. His service is regarded as second rate medicine.

As the social insurance gradually widens and better paid classes aspire to and obtain the advantages of cheap medical service, the medical profession is losing its prestige and being looked down upon. With the expansion of insurance with medical benefits to higher salaried classes, at first an adequate professional fee is paid and then whittled down to a vanishing minimum.

In Alsace⁽²⁾ which was a province of Germany, 90% of the bread winners are in some way or another in receipt of contract medical service. The barber per month costs the wage earner considerably more than his doctor.

From a national point of view the service rendered is clerical and not professional: its abuse prevents it from maintaining the health of the people. Released from financial responsibility, the unreasonable demands of some patients create a shortage of funds to the detriment of genuine sick. Dissatisfaction and strife exist between the society, the doctors and the insured in the nature of a triangular contest.

The present system of social insurance in Germany is repudiated⁽²⁾ by responsible people from all classes of the community, even by syndicalists. It is now, however, a mighty social structure, impossible to remove, but perhaps possible to modify.

The tendency of insurance to increase the incidence of sickness and to undermine the moral stamina is not confined to Germany. In England during the period 1920-1926 the numbers of insured members of societies increased by 11.4%, the incidence of sickness by 69.5%.⁽⁷⁾

The cost of invalidity to the National Insurance Fund in 1923 was £14,000,000, in 1926 it was £16,500,000.

Sickness incidence, among other reasons, depends on the ease with which certification can be obtained, and on the amount of unemployment.

From the foregoing the two features of national insurance which it is most desirable to avoid, are: (i) The moral degradation of the people who develop a wish to be sick for the purpose of obtaining money; (ii) the ruin of the medical service upon which the national health depends. Both are linked up with the manner of provision of insurance benefits and the method of certification of sickness which entitles the insured to those benefits.

The degradation of the medical service under the present capitation system needs no amplification. It raises the question: Is sickness a definable risk? It seems to be the least definable risk imaginable, being subject to fraudulent creation, exploitation and capricious imagination. The doctor is expected to cover all these risks for a fixed payment and in addition to act as the friendly guide of the patient on the one hand and to protect the financial stability of the society against exploitation on the other.

Diagnosis is a heavy responsibility, most difficult among those who have least signs of disease and particularly where symptoms are assumed. It may take hours or days of examination to detect or disprove a simulated complaint. Consequently, under

the present system, proper examination as a general rule is not attempted. The sick suffer and so does the fund which might more adequately support them if depredations were fewer. As sickness incidence increases, the contributions must go up or the benefits diminish.

In what way the funds of any national insurance scheme can be protected against unworthy application, and medical service, regarded as a national asset, can be saved from degradation and inefficiency, has given much food for speculative thought.

The methods by which insurance is effected, are mainly: (i) By a pooling of all contributions and risks of the insured, (ii) by each individual saving in a lay-by system against his own individual risks.⁽²⁾

In the former method the contributions of all insured are at the disposal of those insured who need assistance. The need for help, however, depends not only upon the development of a physical disorder, but also upon a mental attitude. By means unfair and often sinister the funds are taken advantage of by those who are not really entitled to the help available.

The latter method spells individual self-reliance and independence of mind and spirit which insures conservation and not waste, if the saving is voluntary. The same sentiment does not apply where such saving is compulsory. The time payment and cash order systems of purchase demonstrate clearly that a large section of the people will exploit their prospective earnings and any possible accessible savings to gratify immediate longings.

It might be contended, since the cash benefit available is only one-third to half of ordinary earnings, that loss incurred by sickness is sufficient protection against malingering. Experiment in Germany has shown that a small weekly payment and idleness are often preferred to work and wages.

It seems that the stability of any insurance funds, no matter how they are collected or distributed, depends mainly on careful certification by the medical service.

Specklien, of Alsace, commends a system which has been supported by many—a capital insurance. The compulsory payments of the insured are paid into two funds, one-tenth into a collective contingencies fund, nine-tenths into a savings fund. It is therefore a combination of the two principles previously mentioned. The former fund, one-tenth, issues loans and subsidies to insured persons who have exceeded their savings in premature sickness, child-birth and the like, and aids in preventive measures against sickness. The latter fund, nine-tenths, is the personal property of the insured from which he pays medical fees and supports himself in sickness, invalidity or old age. He draws the balance of the proceeds at sixty-five years or if he dies before that time, his direct heirs receive his insurance money without probate taxation.

It is contended that such a system should establish a desire to be well to work, to save and not to draw

sickness benefit or to employ more than necessary medical service, for each such withdrawal by the insured depletes his own savings. Such a system of insurance would tend to rectify very many of the abuses prevalent in existing systems of insurance. It would tend to diminish (i) the high incidence of sickness, (ii) the necessity for frequent perfunctory certification, (iii) it would tend to improve the service to the sick by emptying the waiting rooms of trivial complaints.

The cost of administration of such a system would be no greater and it might be less than the present German system which employs one person for every two hundred insured. It offers, however, only a limited pooling of risks for premature contingencies and unless some new system of certification is established, it would be the victim of prodigal depredations by those who would realize, if possible, upon the collective fund and their own individual credit fund. (It might appear immaterial to the medical profession how much certification would be demanded if the doctor were paid adequately in cash by the patient for the service rendered with money drawn from the patient's resources in the fund.)

The system of cash payment to the doctor for certification was recommended in conjunction with the National Insurance Bill introduced into the Australian Federal Parliament in September, 1928.

This method has been in operation for some time in northern Ireland, where medical benefit does not operate, but the doctor receives a fee for each sickness certificate issued. It is authentically stated that "the claims for sickness benefit certified by doctors are twice as numerous as in either England or Scotland." "If these conditions were to cross the Channel, the insurance scheme would be bankrupt in a very short period."

Certification for cash payment seems a dangerous adventure for any national insurance fund. It would end in readjustment of payments for certification and then employment of medical officers by the fund.

Nationalization of the medical profession has been suggested as a remedy. It has previously been pointed out (Article II) the strong objection which must be made to such a system.

It seems paradoxical for the insurance doctor to be asked to perform at the one time two functions which may be conflicting: (i) To act as the friend and medical attendant of the patient, and (ii) to police the patients in order to maintain the solvency of the funds. The two functions should be separated. This would leave the medical service free to attend to the health of the people. Attendance upon the doctor would be for purposes of obtaining health and not money. Patients would not blackmail doctors into certification of sickness by threatening to go elsewhere. Some system such as the appended suggestion might satisfactorily operate.

By increasing the period between the first report of the patient's illness to his doctor from three days,

as in English rational insurance, to fourteen days before sick pay commences, the necessity for certificates in a multitude of brief minor illnesses would be eliminated. It would act as an encouragement to the insured to return to duty as early as possible. It would inflict very little hardship in Melbourne, because in Victoria there are 730,000 bread winners, but 1,100,000 State Savings Bank accounts (1928).

In case of sickness extending into the third week, sickness benefit would be available for the second and third weeks of illness and available from commencement of illness if disability extended into the fourth week or beyond that period.

In cases where hardship would seem to be inflicted by withholding sickness benefit for two weeks, eleemosynary provision could be made at the discretion of the approved society from surplus funds employed as additional benefit. Before fourteen days had elapsed ample time would be given to the patient's doctor to discriminate between illnesses which were incapacitating and those which were supposed. All certification would be undertaken by a full-time referee medical officer employed by the insurance fund who would certify or otherwise after consulting the patient's own doctor. This proposal seems the only logical way to preserve the interest of the fund on the one hand and the patient on the other. Cases of dispute could be referred to a referee medical board or consultant medical service.

Social Insurance in Australia.

In September, 1923, a Royal Commission⁽⁸⁾ was appointed to inquire into and report upon (i) national insurance as a means of making provision for casual sickness, permanent invalidity, old age and unemployment, and (ii) the operation of maternity allowance system with a view to the incorporation with national insurance of a scheme for securing effective prenatal and other assistance to mothers.

The first progress and fourth (final) reports of the Commission were presented to the Federal Parliament in June, 1925, and March 11, 1927, respectively.

On September 14, 1928, a bill for an act to provide for the insurance of employees and the wives, children, widows and orphans of employees against certain contingencies and for other purposes was placed before the Federal Parliament by the Treasurer, the Right Honourable Earle Page.⁽⁹⁾ It was consequent on the report of the Commission; it was not a party measure. Ample time was given for its consideration by all parties concerned. Subsequently the Bruce-Page Government was defeated and owing to the present financial crisis no such bill is likely to be immediately introduced. The recommendation of the Royal Commission still stands. Social insurance is a popular world-wide movement in which Australia is bound shortly to share.

Had the bill presented by Dr. Page in 1928 been endorsed by the Federal Parliament, the medical profession in Australia would have shortly found

itself engulfed in a system of social medical service, resembling Germany, without any attempt whatsoever having been made to present an alternative remedy.

The bill provided for allowances for sickness, disablement, children, widows, orphans, superannuation and marriage, but no allowance or benefit for medical services. This was regarded by many of the medical profession as a matter for congratulation.

The solvency of any national sickness insurance fund depends upon the existence of some medical service to maintain the health of the insured. Friendly societies which now provide for 25% of the population,⁽¹⁰⁾ were to become approved societies and in company with the commercial insurance companies and a general approved society were to undertake the insurance of at least an additional 45% of the bread winners.⁽¹¹⁾ The approved societies, to safeguard their solvency against high incidence of sickness, were bound to insure that all their members had access to adequate medical facilities. Provision was made in the Bill that societies must spend their surplus funds in additional benefit,⁽¹²⁾ the most important of which is medical benefit.⁽¹³⁾ The great majority of the 70% of bread winners to be compulsorily insured come within the income limits of the model lodge agreements of the various States. That which the British Medical Association in England prevented, we conceded—control of and provision of medical benefits by approved societies (the German system).

The hospital policy of the Charities Board of Victoria is "pay beds in public hospitals" and suburban out-patient clinics affiliated with public hospitals, staffed by honorary visiting and paid resident medical staffs.⁽¹⁴⁾ Approved societies spending compulsorily surplus funds on benefits would endow clinics and hospitals and would purchase thereby: (i) A share in the management by appointment of contributors or subscribers, and (ii) preferential arrangements for their members, as in New Zealand.⁽¹⁵⁾

Furthermore contributing schemes were bound to take root in approved societies which under another name therefore would purchase a further share in the management of the hospitals, creating a system of service under their control as set out in the article on contributing schemes. Bereft of any more studied guidance on our part, the approved societies were bound to follow this course.

No compulsory insurance for the provision of medical service unhampered by the duties of certification in order to obtain sickness benefit has come under review.

Enactment of the National Insurance Bill by the Australian Federal Parliament would have resulted in a solution of the "hospital problem" through the agency of approved societies on the same principles as are followed in Germany.

Fortunately for Australia, the opportunity still exists for a better plan to be devised which should protect the Australian people from the detrimental

influence of the methods existing elsewhere when and if compulsory insurance providing sickness benefit is introduced. Not only the health services, but the moral independence of the Australian people of the future largely depends upon the willingness and ability of the medical profession to produce a more satisfactory plan.

The absence of a satisfactory plan imposes upon all: (i) The dangers inherent in pending compulsory national insurance, (ii) socialization of the medical profession through the agency of public hospitals, paying beds therein and contributing schemes.

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V.

AN ALTERNATIVE PLAN OF INSURANCE.

IF we would avoid the disadvantages inherent in the above schemes, it will be necessary to submit an alternative plan which will insure: (i) Financial provision adequate to maintain efficient service; (ii) freedom from organized lay control of the personal relations between doctor and patient, that is, (a) free choice of doctor by the patient, (b) freedom of contract between doctor and patient for service about to be rendered.

This can be achieved not by nationalization nor by voluntary saving, but by a compulsory insurance which will provide medical and nursing attention independently of any other insurance schemes or benefits. This plan is not submitted, on the one hand, at random without inquiry or, on the other, with the conception that it is complete or infallible, but with the hope that it will either form the foundation of an amplified plan or make way for something better.

Any scheme of insurance to be valid must subscribe to the following conditions:

1. It must be fair to all parties, otherwise the party oppressed would simply endeavour and probably be effective in rendering the plan unsatisfactory, for example, (a) it must prevent over-exploitation of the trainee nurse; (b) it must avoid ignoring and belittling the domiciliary service; (c)

it must prevent extension of the honorary system; (d) It must avoid excessive contributions to the fund which would be difficult for poorer contributors to meet.

2. It must initiate and maintain adequate medical and nursing service for the population. Adequate service involves: (a) hospital nursing service, (b) hospital medical service, (c) domiciliary service, (d) post-graduate work and facilities upon which the efficiency of (a), (b) and (c) depends. Existing medical and nursing service is not adequate. Voluntary provision and the community plan have failed. Contributing schemes and voluntary insurance do not provide sufficient money and continue to throw heavy responsibilities upon the State, the thrifty independent and the medical profession.

3. It must be stable and plastic. If it is rigid it will be unstable. It must be adaptable to changing times, diverse demands and different sections of the community.

4. It must be politically and socially practical. The capital insurance of Specklin, previously mentioned, is perhaps an ideal. The popular spirit of Australia, living on future earnings and resources, would render such a system of insurance difficult to maintain. Friendly society experience during the lodge dispute in Victoria would not lead them to favour an insurance involving cash payments from a fund for medical domiciliary service. Friendly societies experienced, then, the burden of covering those indefinable risks which the doctor undertakes usually for a fixed payment. It is now to be suggested that the doctor and patient should share the risks and that the insuring society should be exempted from other than a fixed payment on behalf of the insured for medical service.

Principles of the Scheme.

1. For the sake of efficiency it is necessary to maintain a wise balance between payment given on the one hand and service demanded on the other. We cannot therefore release the individual entirely from responsibility to pay for each service rendered to him. For this reason the principle of insurance enunciated in the first Progress Report of the National Insurance Commission, page 13, should form the basis of the plan.

The intention of the provision of such benefit is not to maintain the member of society during the period of incapacity, but to assist him during such period and if the benefit payable were considered the only available financial resources of a member, it would undoubtedly be inadequate for all requirements.

2. Distinct non-transferable funds for separate services should be created. The services involved are two: (i) hospital nursing service, (ii) medical service.

In order that extravagance in one service might not result in prejudicial economy in another, it is proposed that two distinct funds should be created: (i) An insurance fund for hospital nursing service, (ii) an insurance fund for medical services, and

that the latter fund should be divided into two parts, (a) for hospital medical service, (b) for domiciliary service.

Thus there would be an insurance fund providing for contingencies of sickness, divided into three distinct parts which are not transferable: (i) For hospital nursing service, (ii) for hospital medical service, (iii) for domiciliary service.

Part I: Fund for Hospital Nursing Service.

The fund for hospital nursing service will be disbursed as a cash benefit to people requiring hospital in-patient treatment for acute illness, available for a maximum period of six weeks in hospital. It will not cover the full cost of maintenance. It does not include any provision for infectious or contagious disease.

The difference between the cost of maintenance and the benefit paid should be greater than the cost of board and lodging, as otherwise hospitals will be used not for nursing requirements, but for domestic convenience.

Patients will thus be divided into two classes: (i) Those who cannot pay the difference between the cash benefit and the cost of maintenance; (ii) those who can pay the difference between the cash benefit and the cost of maintenance. The former, Class I, will be admitted into existing charitable institutions which employ closed staffs (medical) and some of which are teaching schools. The latter, Class II, will be admitted into open or community hospitals which are self supporting.

A payment of fourpence per week per wage earner (male and female) will endow each bed up to five beds per thousand population to the extent of 26s. 6d. per week. This will provide a cash benefit of 26s. 6d. per week to the occupant of each bed, whether the bed is in a charitable or self-supporting hospital. Such benefit must be applied to payment of hospital nursing fees.

Part II: A Fund for Hospital Medical Service.

A hospital medical benefit fund should be created by a contribution of fourpence per wage and salary earner per week. Taking Melbourne as an example, two-thirds of Melbourne bread winners are wage and salary earners. At fourpence a week these would create a fund of £230,000 *per annum*. One-third of this fund would provide staff funds in recompense to medical staffs of closed hospitals for (a) service to patients in those hospitals, (b) development of proper post-graduate teaching facilities around these hospitals. (This latter is an urgent national and professional need.)

In addition these staff funds (for metropolitan hospitals) would be supplemented by a substantial extra contribution for medical treatment of rural population occupying city public hospital beds. Ten per centum of public hospital beds in Melbourne are occupied by rural population.

The remaining two-thirds of the fund will provide cash benefits to insured members occupying community hospital beds at the following rates: For a

major surgical operation, £10; for a minor surgical operation, £5; for a confinement, £2 2s., a surplus of £20,000 being available for other purposes.

Patients in community (open) hospitals would be divided into two classes: (a) Those who can provide for maintenance and supplement the cash benefit in payment for medical treatment, (b) those who can provide for maintenance, but cannot contribute towards their medical treatment.

When wider review of the extent of surgical practice is undertaken there is reason to believe the amount of cash benefits available from the fund will be found to be approximately correct.

Part III: Domiciliary Benefit.

Domiciliary benefit applied to the provision of domiciliary service would be disbursed as a capitation fee to panel doctors partly to recompense them for services rendered to the insured and their dependants. In addition to this the panel doctor would receive a visitation fee for each attendance paid to the insured or his dependants. The visitation fee would vary by local arrangement according to local conditions in districts.

Limitation of the size of panel lists would have to be carefully considered. This insurance would diminish the number of applicants for free out-patient service at public hospitals which would then be used as consulting clinics for referred patients.

Payment for consultants would be effected by staff funds already referred to in Part II and by charges made to patients for these auxiliary services, thereby reasonably limiting the demand. A contribution of fourpence per week per wage earner (or 17s. 6d. *per annum*) is suggested as a capitation fee and a visitation fee of 2s. 6d., varying according to districts.

Provision of Hospitals.

The assurance of adequate funds for maintenance of the hospital and medical service therein will create the demand for hospitals in localities where they are needed. Supply usually follows demand.

Control.

It is suggested these funds should be administered by trusts upon which all interests concerned are adequately represented. No deduction in the value of benefit has been considered in respect of cost of administration or unemployment. The extent of the statutory liability of the wage earners would be one shilling per week.

Domiciliary service, that is, service to the sick in their own homes or at the surgery of the doctor, if not the most dramatic, is probably the most important service of all. Owing to its magnitude contracts in the past have been made for its conduct. The solvency of any scheme to provide for hospital treatment depends upon: (i) early recognition of disease, its amelioration, abbreviation and prevention; (ii) the amount and quality of the work which can be undertaken in the homes of the people. Demands upon hospital accommodation for in-patients and out-patients depend on the above service.

The quantity of service required in this aspect of medical service is not definable. The doctor for fixed payment (by lodges) is required to cover the risks contingent upon: (i) fluctuations due to epidemics, (ii) demands of patients depending upon not only physical ills, but the mental attitude of the patient. (The capricious demands of some patients tend to spoil the service for everyone and create a feeling of antagonism between a doctor and nearly all his lodge patients.)

The fixed capitation fee sets a premium upon speed and not upon efficiency. Excessive quantity of service can be readjusted generally only by an inferior quality of service rendered and this is reflected in the increased demand for hospital service.

To avoid this a mixed capitation and visitation fee has been recommended and therefore: (i) The patients as well as the doctor share in the load created by epidemics. The doctor is recompensed in some measure according to the quantity of the work which he undertakes. (ii) A fee, however small, sets some value on the doctor's time and prevents unreasonable patients demanding service when they do not require it. This will help to prevent them from victimizing the doctor and spoiling the service for other patients. (iii) The quality of the work will be improved. Those seeking attention can be regarded as having some real cause for coming to the doctor. The fewer visits required will raise the value of capitation fee per visit. Patients paying a fee per visit will not be content with a perfunctory examination, prescription and instructions to return again. The visitation fee imposes a responsibility on the doctor as well as upon the patient.

There are two additional important considerations which commend this system.

1. In any statutory insurance (for example, in Melbourne) it is necessary to have a uniform capitation fee. A fixed capitation fee suitable to doctors in industrial suburbs would not be satisfactory to doctors in residential suburbs. The work for the same service is more exacting in the residential suburb. Therefore a minimum capitation fee uniform for Melbourne is suggested. The visitation fee would be adjusted by local medical committees in respective groups of suburbs to suit local conditions of practice.

2. A lower contribution to the insurance fund is required to provide the smaller capitation fee and this brings the scheme within the easy reach of all people to be insured.

This plan is a combination of compulsory insurance and the community plan. A small visitation fee will be able to be collected from most of the patients; where such is not collected, service will be a contribution to charity. This will be offset by: (i) A larger number of people will be handled in industrial suburbs. (ii) In-patient hospital work for the poor will be done in "closed" hospitals because these patients will not be able to pay the

difference between the nursing benefit and the cost of maintenance. This will raise the value of the capitation fee and reimburse the industrial doctor for his losses on the unpaid visitation fee. The complete capitation fee has always ended unsatisfactorily, as in England and Germany. The growing demands for increasing investigation create a further necessity for elasticity in payment.

Limitation of Panel Lists.

It is world-wide experience that neither insurance nor anything else has effected a redistribution of the profession according to quantity of service to be rendered. They congregate where fees are highest, not where population is densest. Melbourne is no exception to this rule. This situation is accentuated in the inner industrial suburbs and contributes to a death rate 20% higher than in the outer industrial and residential suburbs.

No scheme could ever permit a doctor to undertake attendance upon unlimited people by accepting them upon his list.

The domiciliary doctor is retained under this system by the patient and partly paid for service anticipated. He must have access, therefore, to hospitals whither these patients are admitted when they are sick, in order to discharge his obligations. If they are patients unable to pay the difference between the cash nursing benefit and the cost of maintenance, they will be admitted into charities with closed staffs and this will release the doctor from his obligations. The out-patient departments of public hospitals will become consulting clinics for referred cases among the poor. The relief of these departments from routine work would solve the hospital out-patient problem.

Hospital Nursing Service.

A hospital nursing benefit of 26s. 6d. per week per bed up to five beds per thousand population insured differs from contributory schemes where the hospital reserves the right to decide who will be admitted.

The use of the hospital is dependent on the wishes of the patient and his doctor, not on the hospital or the fund. To restrain patients from unnecessarily using the hospitals, the difference between the cash benefit and the cost of maintenance, that is, the amount paid by the patient, must be more than the cost of board and lodging, otherwise (i) five beds per thousand will be inadequate, (ii) the calls on the nursing benefit fund will be heavier than the contribution will provide. This nursing benefit fund provides for nursing and not for board and lodging.

Hospital Medical Benefit.

Hospital medical benefit provides: (i) Cash benefit to assist the patient in payment for medical service in open hospitals; (ii) a staff fund for payment of medical staffs of closed hospitals in recompense for (a) treatment of those who cannot pay the difference between the cost of maintenance and the

nursing benefit. (In this instance the hospital and not the patient or his doctor controls the admission into and discharge from hospital.) (b) Post-graduate teaching to the profession.

In the case of open hospitals, where the patient pays the difference between the cash benefit and the cost of maintenance, the provision of funds which will partly cover the cost of nursing and partly or completely cover the cost of medical attention, will place proper hospital service, medical and nursing, within the relatively easy reach of all. The demand for hospitals will be created where they are necessary and this will be followed by the supply. In these hospitals the domiciliary doctor will be able to discharge his obligations to the insured.

Patients admitted to such hospitals will have free choice of doctor concerning surgical, obstetrical and consulting medical service and will make their own arrangements assisted by cash benefit.

The auxiliary services (X ray, radium, bacteriological, biochemical), it is suggested, should be conducted by the hospital.

The members of the medical profession who are concerned in this service, will be paid on the same basis as domiciliary service, that is, a retaining fee according to the probable number of insured upon the list who are served and a modified examination or service fee for each examination made. Cooperation will exist between domiciliary service, investigation departments and consultants. A hospital of 150 to 200 beds will conveniently serve 50,000 people in the suburb in which they live. Where possible an open hospital should exist near a teaching or closed hospital for use mainly of the staff of that closed hospital. Such an open hospital should be conducted entirely independently of the charity hospital and the finances of the two institutions should be in no way intermingled. The open may buy service from the closed hospital. The open beds will be used by consultants for their own private cases, accident, rural and others.

It is not regarded as a wise policy to erect new hospitals on expensive sites in the centre of the city. These central open hospitals will not be therefore unlimited in capacity. The tendency is to consider convenience of the patient and capital outlay.

Four classes of hospitals will then exist: (i) Open hospitals independent of public charity; (ii) open hospitals in the vicinity of, but independent, of public charity; (iii) closed hospitals (public charity and teaching school); (iv) private nursing homes.

Post-Graduate Work.

There is no place in Australia where the medical profession can obtain a brief, clear, authentic survey of clinical work and recent advances. A better informed profession is a great asset to the public. The possession of assured, up-to-date information will raise the profession in its own esteem and in its enthusiasm. Teaching hospitals would become colleges, to one or more of which each member of the profession would be attached and regularly attend for instruction. All teaching

activities would be governed and coordinated by senior members of the profession in conjunction with the faculty of medicine.

Under the present system every doctor is an experimentalist with each new remedy. These new remedies and new procedures should be submitted to a scientific trial in teaching hospitals and condemned or approved before they are accepted and applied by the profession to the public as a right means of therapeutics. The teaching will be paid for by the staff fund.

Consulting Service.

It is estimated 40% of the public will attend closed hospital out-patient departments when investigation or consultation is necessary. This service will be rendered by closed staffs of hospitals receiving payment from the staff fund. These patients will contribute the material for teaching purposes. The remaining 60% will pay a modified investigation fee at open hospitals for X ray and biochemical work. Consultation fees will be provided by the patient who will maintain freedom of choice of doctor.

Conclusion.

Should any national insurance scheme be introduced for the provision of sickness, invalidity, old age and other benefits similar to those defined in the National Insurance Bill (Canberra, 1928), it is proposed that the provisions of the scheme in regard to certification should be similar to those suggested in Article IV upon compulsory insurance.

The functions of the medical profession, (a) therapeutics, (b) certification, should remain entirely distinct.

This plan of insurance appears to conform to all the requirements defined at the outset of this article. It is fair to all parties, it provides adequate service, it is stable and plastic, it is politically and socially practicable. It is founded on the principle defined by the Insurance Commission and accepted by those who introduced the National Insurance Bill, 1928, to the Federal Parliament.

The Victorian Branch of the British Medical Association has not been prepared to accept the community plan or contributing schemes as a solution of the hospital problem, but has clearly realized that if we would avoid these solutions of the problem, a satisfactory alternative plan is necessary.

Accordingly delegates duly appointed by all the Divisions of the Victorian Branch of the British Medical Association in Victoria met in Melbourne on October 17, 1929, and April 30, 1930, to discuss these matters and they resolved among other things to endeavour to collect sufficient funds (£6,000 or more) in order to investigate further and amplify the plan of insurance herein set out.

We hope that any satisfactory investigation of these problems undertaken by the Victorian Branch and any solution offered will be of great help to other Branches of the British Medical Association in Australia.

It might be thought by some that action on the part of the British Medical Association is either premature or entirely unnecessary. If that is so, can such dissentients define:

1. How the growth of public hospital service much more rapidly than the population can be prevented? (See THE MEDICAL JOURNAL OF AUSTRALIA, January 19, 1929, page 72.)

2. How the public hospitals which must continue to function, can be financed without the establishment of contributing schemes and institutionalization of the profession? At present the hospitals are rapidly drifting into financial difficulties.

3. If they favour such lay control of the professional relations between doctor and patient, where this has been satisfactory? Membership of the British Medical Association is voluntary and undertaken on the understanding that the objects of the Association are "to promote medical and the allied sciences and raise the profession in the eyes of the people." To maintain a high ethical standard it has often been found necessary to protect the economic condition of members of the Association. If the Association permits social processes to be initiated which undermine both the dignity and quality of the service which the medical profession renders, it automatically repudiates its function and the right to control its voluntary members. These in their turn, as individuals or sections, such as the College of Surgeons and general practitioners, will act independently on their own behalf in a way that is uncoordinated. An uncoordinated endeavour is bound to be inefficient and is not in the best interest of the Australian medical profession or people.

To maintain its influence the Association must maintain its ascendancy and achieve the cooperation of all sections of the profession by striving to elevate the dignity and the quality of professional service. Thus will it justify its recognition by the nation. The British Medical Association in Australia must ride the tide or be beached politically, which means also ethically. Its power to act depends not only upon the initiative of its earnest councillors, but upon the interest of its individual members. The medical profession in Victoria has been asked by the Branch Council to cooperate in provision of a certain amount of time and money, both of which are trivial considered in the light of the objective.

A close study of the situation in order to place a better service at the disposal of the population at a convenient cost can be made only by the assistance of all members of the medical profession when called upon to help. Such an honest attempt by the united profession is the only condition upon which we can maintain our hard won, but precarious, dignity and our right to freedom.

Acknowledgement.

The Council of the Victorian Branch of the British Medical Association was first approached upon this subject on October 16, 1926.

I should like to thank those who in the interval have helped our inquiry, particularly Dr.

A. V. M. Anderson, Dr. A. E. Brown, Dr. F. L. Davies, Dr. A. P. Derham, Dr. R. H. Fetherston, Dr. L. S. Latham, Dr. Newman Morris, Dr. D. Rosenberg, Dr. J. F. Wilkinson, Mr. Colville, Mr. Hurley and Mr. Zwar, to whom thanks are particularly due.

Reports of Cases.

SPREADING GANGRENOUS INFLAMMATION.¹

By HUGH R. G. POATE, M.B., Ch.M. (Sydney),
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Honorary Surgeon, Royal Prince Alfred Hospital, Sydney.

On October 22, 1929, A.R., a male, aged thirty-six years, and a packer by trade, was admitted to the Royal Prince Alfred Hospital with the provisional diagnosis of empyema on the right side. He stated that seventeen days previously he had been admitted to the Liverpool Hospital with a right-sided lobar pneumonia. The crisis occurred seven days later and he had felt well, but one week ago he had developed a cough with copious sputum which had been white and frothy at first, but which had quickly become thick and green in colour. There had been no pain. He had noticed some periods of breathlessness, but otherwise the cough and sputum were his only symptoms. On the day before his admission to the Royal Prince Alfred Hospital a *paracentesis thoracis* had been performed and pus was obtained. His family and personal history did not reveal any relevant facts. His previous illnesses consisted of an attack of influenza and sandfly fever during the war (in Egypt). Since then he had had two further attacks of influenza. Appendicectomy was performed for acute appendicitis nine months previous to his present illness.

His general condition appeared good. Apart from his cough and sputum and a slight breathlessness on exertion he felt well and had a good appetite. His temperature was 38° C. (100.4° F.), his pulse rate 109 and his respiratory rate 27. The alimentary, circulatory and nervous systems appeared quite normal. Examination of the urine did not reveal any abnormalities. An examination of the respiratory system showed the clinical signs of fluid to be present in the right side of the chest, extending up to the level of the third rib in the mid-clavicular line and round the back to the level of the eighth thoracic spine. He had a frequent cough and the sputum was copious, foul smelling and purulent.

Thoracotomy was performed on the day of his admission to hospital, portion of the tenth rib in the scapular line being removed for this purpose. About one and a half pints of pus were evacuated and a wide drainage tube inserted. Drainage was satisfactory for about four weeks, when it was evident that pus was reaccumulating. Thoracotomy was again performed on November 26, portion of the eighth rib being removed. Much foul pus came away.

The thoracotomy wound drained well, but about ten days later, after the wound had become very dirty, two brawny areas like large carbuncles formed on either side of the wound. When the sloughs separated, the brawny edge of inflammation continued to spread and slough in spite of all treatment. The process involved the tissues of the back down to the level of the deep fascia so that the base of the ulcerating surface consisted of uninjured deep fascia. The spreading edge of gangrenous inflammation gradually extended until it had involved the area shown in the accompanying illustration, which was taken at autopsy. The general condition of the patient, as might be expected, was one of increasing cachexia and pain

and towards the end it was necessary to administer a total of 0.075 gramme (one and a quarter grains) of morphine during the day. He collapsed and died suddenly on April 30, 1930.



Figure showing *post mortem* condition in Dr. Poate's patient.

Treatment.

One characteristic of this case was that all forms of local treatment were of absolutely no avail. The use of saline fomentations, concentrated magnesium sulphate fomentations, flavine, metacuprol, hydrogen peroxide and eusol irrigations did nothing to stay its progress. Portion of the sloughing edge was excised and the clean surface treated with fuming nitric acid and at the same time another portion was coagulated by diathermy, but no beneficial result was observed.

Other forms of treatment included a course of intramuscular injections of "Colloidal manganese," of anti-streptococcal serum and of an autogenous streptococcal vaccine.

Investigations.

Investigations were characterized mainly by their negative findings. From the pus evacuated from the thoracotomy openings a profuse culture of a streptococcus was

¹This case was reported at a meeting of the New South Wales Branch of the British Medical Association on May 8, 1930.

obtained and the vaccine was prepared from a Gram-positive coccus cultured from the sloughing edge. An examination of the edge of the area, both as a biopsy and at autopsy, showed the usual features of acute inflammation. No tuberculous, syphilitic or malignant infiltration was suggested.

Post Mortem Findings.

The following autopsy report was made by Dr. Charlotte Gammie.

The body is that of a young man, somewhat wasted. *Rigor mortis* is beginning. There is an appendicectomy scar present. The whole of the back from the occipital region to the upper border of the sacrum and completely from side to side, except an area on the right chest wall, is denuded of skin and superficial tissues to the depth of the deep fascia. A similar area is present on the right arm. At the edge of these denuded areas the tissues are ulcerated, the edge being undermined and sloughs are present.

There is an aperture between the tenth and eleventh ribs on the right side posteriorly which has contained the tube.

Respiratory System: There is no free fluid in the left pleural cavity. There are a few adhesions posteriorly. The left lung is large and on section there is no evidence of consolidation and only a slight degree of congestion. There are no localized areas of emphysema. Dense fibrous adhesions are present between the right lung and the right chest wall anteriorly to about the axillary line. From this region posteriorly there is a cavity which contains about 120 cubic centimetres (four ounces) of thick greenish-yellow pus. At the lower end of the right pleural cavity there are some adhesions present between the diaphragm and the chest wall and a track leads down to the aperture in the skin between the tenth and eleventh ribs. The base of the right lung is absolutely adherent to the diaphragm. On section the right lung shows some fibrosis, probably due to old pneumonia.

Cardio-vascular System: The heart weighs 300 grammes (ten ounces). There is a small amount of free fluid in the pericardial cavity. The right side of the heart is dilated. On section the left ventricle wall is of normal thickness and of fairly good colour. There is no abnormality of the mitral valve. The left auricle is fairly normal. The right ventricle is dilated, the muscle wall is somewhat thinned, but of good colour. The tricuspid valve admits four fingers and the cusps of the valve are normal. The right auricle is dilated and contains blood, but no *ante mortem* clot. The aortic valves and the aorta are normal. There is no free fluid in the peritoneal cavity. The spleen is somewhat enlarged, weighing 240 grammes (eight ounces); it is soft and on section shows some congestion. There is no macroscopical evidence of lardaceous disease.

The liver is enlarged, weighing 1,740 grammes (fifty-eight ounces). It shows some congestion, but very little evidence of toxæmia.

The kidneys are slightly enlarged, weighing 180 grammes (six ounces) each. The capsule strips readily, leaving a smooth surface. On section the whole of the kidney substance appears swollen and there is some congestion of the vessels in the cortex and pyramids.

The œsophagus is normal. The stomach is markedly contracted and the mucosa is very rugose. No abnormalities are detected in the small or large intestine.

The brain and spinal cord were not examined.

The *post mortem* diagnosis was: (i) Chronic empyema (right), (ii) ulceration and gangrene of the back, (iii) toxæmia.

Comments.

From the time the gangrenous inflammation developed about the end of the first week in December, 1929, until death ensued on April 30, 1930, the progress of the disease was steadily progressive and uninfluenced by any form of treatment. Neither myself nor the many colleagues on the honorary staff who examined the condition, had ever seen

anything like it, nor could it be identified with any recognized pathological process. Many suggestions as to treatment were offered and tried, but did not influence the condition in the least.

Acknowledgements.

I am indebted to Dr. Abbie and Dr. McClelland for their unremitting care and attention to the patient. These notes have been prepared by Dr. McClelland. I also wish to record my appreciation of the wonderful services rendered by the nursing staff to this pain-racked man. Their devotion inspired him with courage and fortitude unusual in a patient in such desperate straits.

Reviews.

ORTHOPÆDIC SURGERY.

THE avowed object of Campbell's book is to present to the student, the general practitioner and the surgeon the subject of orthopædic surgery in a simple and comprehensive manner.¹ We feel that the author has been compelled to sacrifice many details of technique in order to satisfy these two requirements.

The sections on orthopædic examination and apparatus are excellent and should be studied by every student of this branch of surgery, but students should be taught to use apparatus in such a way that bedsores are prevented, rather than be warned that "the odour of decaying flesh is always suggestive of decubitus."

The author attempts to differentiate still further the types of arthritis, but we feel that this attempt has only served to increase the difficulties of the student who is attempting to obtain a clear-cut classification of this disease. Some details of Pemberton's work would be of material assistance in this direction.

The term "low grade affections of joints" is used to include various types of arthritis, trophic conditions, osteochondritis, endocrine disturbances, hæmophilic disturbances and neoplastic conditions. Such a comprehensive term tends to detract from the accurate pathology which should form the basis of classification of these conditions.

The author lays stress on the value of biopsy in the diagnosis of tuberculous conditions of joints and the emphasis laid on the necessity for associating local and constitutional treatment in these conditions seems a very timely warning against the tendencies of some schools to exalt the former at the expense of the latter. The description of the technique of heliotherapy is very comprehensive and should be a useful guide to students. The indications for fusion in the treatment of tuberculosis of joints are clearly stated and represent the present consensus of opinion.

The author emphasizes the necessity of avoiding forcible passive motion, so called *brisement forcé*, and we feel that such a warning cannot be over-emphasized. The prevention and correction of malpositions and deformities in these affections of joints, although so obviously necessary to orthopædic surgeons, does not yet seem to be sufficiently appreciated by many who undertake the early care of these conditions. A perusal of the chapter on acute affections of joints would, we feel sure, impress these principles on the mind of any reader.

In general the indications for arthrodesis and arthroplasty are very clearly and concisely stated and should be a valuable guide to students and practitioners alike.

The fact that the medial genicular artery runs through fatty tissue in adults appears to us to be insufficient foundation for the embolic theory of the causation of *osteochondritis dissecans*. The author states that the treatment of circumscribed and traumatic varieties of *myositis*

¹"A Text-Book on Orthopædic Surgery," by Willis C. Campbell, M.D., F.A.C.S.; 1930. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little. Royal 8vo., pp. 705, with illustrations. Price: 37s. 6d. net.

ossificans is entirely surgical, advising wide excision; we do not think that this statement will be endorsed by many other orthopaedic surgeons.

The discussion of bursitis is excellent. The use of electricity in the treatment of anterior poliomyelitis is deprecated owing to the lack of proof of its value.

The author sometimes departs from strictly scientific terminology, as for instance, when he states that "bone destruction is quickly and spontaneously restored to normal by the restorative forces of the patient."

The subject matter of the book is well arranged and the illustrations are good, but the number of misprints shows evidence of rather careless proof-reading.

The whole work is good and with minor exceptions displays well balanced judgement in selection and conservative outlook in criticism of current methods of treatment. If the clinical outlook were submerged slightly and scientific principles underlying treatment were given more detailed attention, the value of the book would be still greater.

CONGENITAL TALIPES.

In "Congenital Club-Foot" Dr. Brockman reviews in a concise and clear manner all phases of his subject.¹ The book commences with an account of the history of our knowledge of the condition, commencing with a description by Hippocrates and ending with modern researches.

A careful account of the nature of the deformity is then given, a chapter being devoted to the normal anatomy of the foot and another chapter to the pathological anatomy associated with club-foot. The important point emphasized in the latter chapter is that many workers have drawn conclusions on the pathological anatomy from the dissection of specimens of advanced club-foot in adults. This does not give an accurate idea of the anatomy, as the deformity becomes modified by weight bearing. The author shows very clearly from early specimens that the descriptions of gross changes in the shape of the astragalus and other bones seen in late specimens is not a cause, but an effect, of the deformity and that the outstanding change present in all early cases is a subluxation of the head of the astragalus outward. It is on this fact that the chapter on aetiology is based; but the author goes into other theories and explains the arguments for and against them.

The rest of the book is devoted to treatment and results based on a series of one hundred and seventy-nine cases of the common type of club-foot. The extreme importance of commencing treatment at the earliest possible time after birth is strongly emphasized and details of the method of gradual correction are given and well illustrated by diagrams. The treatment of so-called relapsed cases is also described in detail.

The candour of the chapter on treatment and results makes the monograph a valuable contribution to the literature of the subject.

MORPHINISM.

DR. G. LAUGHTON SCOTT has written an interesting little monograph dealing with the treatment of the morphine habit.² The main portion of the book describes the method of treatment successfully adopted by Dr. Laughton Scott, and detailed histories are given of a number of cases. Some brief consideration is given to the aetiology and symptoms of morphinism, and other methods of treatment are mentioned.

¹ "Congenital Club-Foot (*Talipes Equinovarus*)," by E. P. Brockman, M.Chir., F.R.C.S.; 1930. Bristol: John Wright and Sons Limited; London: Simpkin Marshall Limited. Royal 8vo., pp. 118, with illustrations. Price: 10s. 6d. net.

² "The Morphine Habit and its Painless Treatment," by G. Laughton Scott, M.R.C.S., B.A.; 1930. London: H. K. Lewis and Company Limited. Crown 8vo., pp. 101. Price: 5s. net.

The soothing qualities of opium have been lauded by many a pen. A study of the lives of most famous opium eaters reveals two salient facts: first, the original motive in taking the drug is the relief of physical pain, and second, that those who succumb to the habit are men of eccentric and unbalanced temperament. There is little variation in the response of individuals to the habitual taking of morphine. Euphoria marks the early stage. De Quincey speaks of the "abyss of divine enjoyment" and "the panacea for all human woes." But the joys of opium are short-lived. The happy ecstasy soon vanishes, never to return. The joy becomes habit and the *habitué* finds that tolerable comfort is the best he can look for. The amount and frequency of the dose are increased. Habit now becomes slavery. De Quincey tells of "the pains of opium," the powerlessness of the victim and the dreadful nightmares. Poor unfortunate slaves of the poppy!

Dr. Laughton Scott emphasizes the opinion that but a small number of habitual drug-takers are perverts. Many good citizens become addicted innocently; they are the victims who realize their condition and want to be cured. Pain, overwork and fatigue are the important factors in inducing the habit.

The plan of treatment followed by Dr. Laughton Scott is a modification of the Lambert treatment. It has been described in moderate detail in the "Medical Annual" for 1928. The cooperation of the patient is obtained and the plan of attack explained to him. Broadly, the method consists in gradually withdrawing the drug, at the same time giving large doses of a mixture of belladonna and hyoscyamus. Large doses of "Luminal" are also used; the post-withdrawal insomnia is combated by giving 0.54 or even 0.72 gramme (nine or twelve grains) of "Luminal" each evening.

The importance of avoiding shock in the treatment is stressed. Careful study is made of each patient, his accustomed doses and frequency of administration. Pleasantly and safely the victim is deprived of his drug and quickly, too, for in two or three weeks the habitual taker of ten grains or so of morphine is free. "The patient is spared the shocks of delirium, of merciless diarrhoea, of sleepless nights interrupted every hour by ceaseless medication, which render the Lambert treatment so formidable." Dr. Laughton Scott does not like the Lambert method.

Notes on Books, Current Journals and New Appliances.

GUY'S HOSPITAL REPORTS.

THE July, 1930, number of *Guy's Hospital Reports* is to hand. It contains a number of contributions dealing with interesting subjects. L. J. Witts has a long article on simple achlorhydric anaemia. He points out that achlorhydria may be associated with a primary or with a secondary type of anaemia. The primary type is Addison's or pernicious anaemia, the secondary is that described by Witts as simple achlorhydric anaemia. It is hoped that further reference will be made to this article at a later date. Lancelot Bromley discusses small intestine obstruction and describes forms due to (i) foreign bodies, (ii) inflammation both within and around the bowel wall, (iii) new growths, both innocent and malignant. A. R. Thompson makes a report on the cases of urinary lithiasis occurring during the years 1910 to 1929, inclusive. He comes to the important conclusion that lithotripsy is not justified in vesical stone unless a preliminary cystoscopy is performed, and then only provided that there is not a single contraindication against its performance. In a short article on glycolysis J. T. Irving concludes that the membrane of the kidney cell is not permeable to glucose. He regards it as probable that the factor responsible for the degradation of glucose is situated on the cell surface. Among the other articles is a review of the work of the maternity department of the hospital for 1929.

The Medical Journal of Australia

SATURDAY, SEPTEMBER 20, 1930.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

ACCIDENTS TO MINORS.

IN March of this year the Fourth Conference on Industrial Hygiene was held at Canberra on the invitation of the Prime Minister of the Commonwealth. Several subjects of importance were discussed, as will be seen from a *résumé* of the report recently issued in another part of this issue; and amongst their number was that of accidents to minors. Although the more hazardous tasks in industry are carried out by adults, it may be concluded that the elimination of accidents to minors would have a definite effect in reducing the number of accidents affecting adults; habits of care and watchfulness acquired in youth are not as a rule discarded in age.

The number of accidents to minors considered in the report is 982. At a conference in November, 1928, 692 such accidents were considered and since that date a further 290 have been reported. It is difficult to discover the number of minors exposed in factories to the risk of accident. According to the "Official Year Book of the Commonwealth of Australia" for 1929 there were 22,565 children employed in factories in Australia; 11,612 of these were males and 10,953 females. In the Official Year Book the term child is used to denote a person under

sixteen years of age. The total number of minors would, of course, be much larger by many thousands than the total mentioned in the Year Book. Thus from the available data no estimate can be arrived at of the percentage of minors who meet with accident. Some of the figures in the report are, however, of special significance. No less than 45.4% of all accidents were caused by machinery; and 67.3% of all the accidents were the result of want of care by the injured person. Since 19.8% of accidents were due to causes not stated, it may be concluded that some of this number were also due to want of care by the injured persons. Of special importance from the preventive aspect is the observation that 4% were due to defects in plant and 4% to want of care by others. Since there was a definite increase in accidents towards the end of a working spell, it would be presumed that accidents would be more frequent at the end of the working week, but this is not so. The percentage for Tuesday is practically identical with that for Friday. In this regard it must be remembered that the output of work is greater on Tuesday than on any other day of the week—this is best shown by plotting a graph showing the daily output.

It will be noted that in four of the resolutions of the conference steps for dealing with this matter are outlined. A special committee is to inquire into the psychological aspect of accidents in industry, the necessity for increased knowledge on the part of factory inspectors is emphasized, the administrative methods and working of factory departments are to be discussed at succeeding conferences, and special reports will be prepared on the standards of physical fitness in children to be employed in industry. The employment of young persons in factories in each State in the Commonwealth is regulated by acts of Parliament. Not only do these legislative acts assure that a proper period shall be devoted to primary education, and that "the early years of toil shall not exhaust the worker before the attainment of full growth," but they also protect him from the hazards of his employment. Under the existing acts the 4% of accidents due to defective plants should be eliminated. For the 74.5% of accidents due to negligence the remedy sounds simple enough—care and watchfulness and attention

to the job in hand. Unfortunately when we are dealing with the human mind, we are dealing with an instrument which cannot be made to run continuously in one groove. Given the best of intentions and the utmost care, the mind cannot be prevented from wandering occasionally. What can be done is to make these wanderings more infrequent. The members of the conference recommend the application of educational measures. These measures should begin in the school with definite teaching on the "safety first" habit; continuous emphasis on this cannot fail to have effect. There must also be selective choice of individuals for the different types of work, as well as adequate factory supervision and inspection. The conference has suggested that a State council should be formed in each State to deal with the matter. If this is done, it is to be hoped that the work of the State councils will be coordinated and guided into right channels by future conferences and by the Federal Health Council.

Current Comment.

THE CHIASMAL SYNDROME.

THE skull has long since ceased to be regarded as a mysterious casket whose interior none but a fearless few might dare to explore. Surgery and brain and meninges has become in fact a commonplace. Just as surgical exploration of the abdominal cavity has resulted in a vast increase of knowledge concerning intraabdominal disease, so also during recent years has cerebral surgery revealed much that was previously hidden concerning pathological conditions within the cranium. Particularly is this true with regard to tumours. Thanks largely to the work of Harvey Cushing, the symptomatology of tumours encroaching on the optic chiasma from below is now well known. Briefly, the chiasmal syndrome consists of contraction of the fields of vision resulting eventually in a bitemporal hemianopia, and primary optic atrophy. Contraction of the visual fields usually commences in the upper and outer quadrants, spreading gradually inwards and downwards, but it is rare for both eyes to be affected equally, and a great variety of visual field defects is possible; occasionally there may be homonymous hemianopia and, of course, the condition may progress until the sight of one or both eyes has been completely destroyed. In many instances great improvement in sight follows removal of the tumour. The recovery of apparently atrophied portions of the optic nerve is a remark-

able feature and on ophthalmological examination there is frequently doubt as to whether atrophy has taken place or not. Cushing applies the term "physiological block" to the condition of the nerve in which there is apparent atrophy, but in which recovery of vision follows the relief of pressure.

An interesting feature of tumours in the region of the chiasma is the absence of choked disc associated so commonly with cerebral tumours generally. This is said to be due to compression of the sheaths of the optic nerves and consequent immunity of their distal portions and the discs from the effects of increased intracerebral pressure. The explanation scarcely seems adequate.

Several methods of surgical exposure of the optic chiasma have been devised. There appears to be little doubt that Cushing's method of approach by the transfrontal route is the safest and least difficult. An osteoplastic flap consisting of the major portion of the right half of the frontal bone, together with its coverings, is turned back. The right frontal lobe and dura are drawn upwards and the dura is stripped from the orbital plate from before backwards. Tension is put on the dura and the dural cavity is opened by incising the membrane where it is adherent along the small wing of the sphenoid bone. Usually a sufficient quantity of fluid escapes to render unnecessary any puncture of the ventricle, and the frontal lobe may be further retracted and the chiasma exposed clearly.

During the proceedings of the International Ophthalmological Congress at Schwenningen in September of last year, Harvey Cushing delivered an interesting address on the chiasmal syndrome associated with a normal *sella turcica*.¹ Cushing discusses the differential diagnosis of suprasellar tumours, though he admits that an accurate pre-operative diagnosis of their histological nature is exceedingly difficult. The tumours most frequently encountered are meningiomata, craniopharyngiomata (tumours of Rathke's pouch) and pituitary adenomata. Craniopharyngiomata frequently become calcified and pituitary adenomata are apt to cause erosion of the sella and to produce secondary disorders of pituitary function, so that in the absence of shadow above a normal *sella turcica* as observed by X rays, the diagnosis of meningioma as a cause of the chiasmal syndrome is most likely to be the correct one. Saccular aneurysm has been found at operation by Cushing on two occasions. In neither instance was a bruit to be heard nor did the tumour pulsate. Diagnosis was made by puncture; the resulting flow of blood was stopped by applying a strip of muscle to the opening.

Gliomata of the chiasma are rare in adults and are frequently associated with a distension of the optic foramina which is usually recognizable by X rays. If there is a large central scotoma, indicating earlier involvement of the macular than the peripheral fibres, it is unlikely that tumour is the cause.

¹ Archives of Ophthalmology, May and June, 1930.

Cushing makes a plea for the more careful plotting of the visual fields. This is a work which requires much skill and patience, but is of greater importance in the diagnosis of suprasellar tumours than ophthalmoscopic examination, which may be somewhat misleading and which may leave the observer in doubt as to the existence and extent of optic atrophy.

Further detailed study of the Röntgenological appearances of the *sella turcica* is required. Frequently they are passed as normal, though close inspection might reveal minor evidences of erosion, such as sharpening of anterior clinoid processes, angulation and thinning of *dorsum sellæ*, roughening or partial absorption of *sulcus chiasmatis*, enlargement of optic foramina *et cetera*.

New growths are removed by electro-surgical methods and meticulous care is paid to hæmostasis. The rate of mortality as an actual result of surgical procedure is negligible.

There is a possibility that paranasal sinusitis may cause a localized meningeal reaction in the chiasmal region with symptoms suggestive of tumour, and suppuration of sphenoidal or ethmoidal cells may produce paracentral scotomata with disturbance of vision, but caution should be observed in ascribing to undemonstrable infection in any of these situations the cause of an optic atrophy for which there is no more obvious explanation. Futile operative procedures are carried out by both rhinologist and neuro-surgeon, sometimes with unfortunate results. The ophthalmologist is the one on whom rests the responsibility for deciding whether an intracranial or intranasal cause is more likely, and Cushing suggests that the danger of these needless operations might be largely avoided if the ophthalmologist would conduct his own intracranial and intranasal exploration. At first sight such a procedure can scarcely be considered even as a possibility. At the present time an ophthalmologist is not likely to be a brain surgeon and a rhinologist as well, nor can he be expected to have the expert knowledge required for the treatment of dental sepsis or other foci which might cause trouble in his domain. At the same time, it is undoubtedly a fact that the confines of some of the specialties are not so narrow as they were a generation ago. A brain surgeon must of necessity be a neurologist; he no longer relies on the physician to make his diagnosis. Cushing has been largely responsible for this change. The ophthalmological surgeon is, or should be, more than a carpenter; he need not be restricted by the bony walls of the orbit. It may be that the next generation will see the extension advocated by Cushing. Should this happen, it would lead to more complete examination, more reliable findings and better treatment.

As Cushing points out, there is a danger when the chiasmal syndrome is present of concluding too quickly that a tumour is the cause. Even when the greatest care is taken and when apparently all

diagnostic avenues have been explored, operation sometimes reveals no tumour. As a point of interest it may be mentioned here that the pituitary gland of the parous woman is said to be hypertrophied and, in fact, it has been shown by perimetric observations that there may be evidence of pressure on the chiasma during pregnancy. With further careful ophthalmological, neurological and Röntgenological study fairly accurate diagnosis may soon be possible. However, the technique of cerebral surgery has now advanced so nearly to perfection that when there is doubt as to the existence of chiasmal tumour, it is wiser and more humane to risk the performance of a futile operation than to wait until vision has failed.

DENTAL SEPSIS.

THE subject of dental sepsis is one that is of interest to all general practitioners and to many specialists. The doctrine that septic foci at apices of teeth and infections of the gingival margins are the *fons et origo* of most human ills has been preached by many and has been the basal principle in the practice of not a few. The pendulum often swings too far in one direction and returns of its own weight after an interval. Medical practitioners should read the report of a discussion that took place recently before the Royal Society of Medicine.¹ William Willcox opened the discussion and stated the following general conclusions: (1) Dental sepsis is the commonest focus of infection in the body and must be regarded as one of the most frequent sources of disease of adult life. It is of great importance in relation to illness in the preadolescence period. (2) Dental sepsis, by reason of the great advances in medical and dental knowledge, can be diagnosed with accuracy and its causative effect in various diseases can be gauged. (3) The dental surgeon, with whom must rest the final decision as regards dental extractions, plays a most important part, not only in the essential treatment of most of the common prevalent diseases, but in the prevention of the many illnesses which may arise from untreated dental sepsis. E. Stolkild was the protagonist of conservatism and pointed out *inter alia* that 90% of people who have their teeth removed for disease, manifest no improvement. Watson Turner laid emphasis on the value of the skiagram as indicative of the amount of infection going on in the jaw. There are signs that the pendulum is falling backwards. If Willcox's conclusions are read carefully, it will be seen that accurate diagnosis is emphasized. If diagnosis is accurately made, there will be relatively little danger of needless extractions being carried out. Medical practitioners often ignore the dental surgeon. Though the latter is just as liable as the medical practitioner to go to extremes, collaboration will probably result in more conservatism and should certainly be practised.

¹ *Proceedings of the Royal Society of Medicine*, June, 1930.

Abstracts from Current Medical Literature.

PÆDIATRICS.

Pyloric Spasm.

C. RAMSTEDT (*Deutsche Medizinische Wochenschrift*, February 28, 1930) summarizes the results of treatment noted in the leading German clinics following the treatment in pyloric spasm in infants. In a series of 1,842 cases the general mortality was 18%—after surgical measures 22%, medical 16%. He maintains from his own experience and that of others that in many cases operation has been delayed too long. In his last 60 cases he had only two deaths, while in a new series from various sources the mortality had been reduced to 7%. His technique is described in detail. General and not local anaesthesia should be used. The pyloric tumour should be carefully incised with a blunt pointed knife and it should not encroach on either the duodenum or the antrum of the stomach. Its length is from 1.5 to 2.0 centimetres with a maximum of 3.0 centimetres. By employing such a short incision the risk of hæmorrhage is avoided.

Pneumonia in Childhood.

IN a series of 648 pneumonic infections in children from birth to twelve years, C. McNeil, A. R. MacGregor and W. A. Alexander (*Archives of Disease in Childhood*, October, 1929) found that empyema occurred in one patient in seven. The total mortality was 40% to 45%. In all but four the empyema was basal. In the four exceptions it was situated about the middle of the parietal pleura. The antecedent pneumonia was lobar in 45 instances and lobular in 13. Confirmation is given to Cameron's division into synpneumonic and metapneumonic empyema as a guide to prognosis. Only one case of subpneumonic empyema (between lung and diaphragm) was amongst the series and one true interlobar empyema. In 58 of 69 children pneumonia of some kind was present in the lungs at the time of death. The great majority of fatal cases of empyema in children under two years of age complicate bronchopneumonia. Twenty-one of 69 cases were complicated, that is, one in three, as follows: Pericarditis 16, peritonitis three, meningitis four. Suppuration or necrosis of lung occurred in 37.7% and amongst these there was only one lobar pneumonia.

Bacillus Dysenteriae and Colitis.

W. G. WYLLIE (*The Practitioner*, July, 1930) has examined bacteriologically and serologically eighteen children suffering from colitis, with a view to determining the rôle of *Bacillus dysenteriae* in the condition. In ten the organism was found. All the patients had intermittent looseness of stools, with an excess of

mucus, interspersed with periods of constipation, but without vomiting. Blood and blood-stained mucus were present in ten instances, but their occurrence was found to be as common in specific (dysenteric) as in the non-specific infections. Further clinical differences between these groups were that in the specific infections the stools were at times entirely composed of slime, whereas in the non-specific infections the stools were nearly always pale or greyish. As regards the history, a sudden onset with tendency to continued diarrhoea, some tenesmus, and yellow, dark or green stools over four per day is in favour of a dysenteric infection. With three exceptions the body weights were near or over the average; this signifies the presence of a mild infection, with very little toxic absorption. The case for a specific dysenteric origin of celiac disease is unproved, but such an infection may accentuate the disorder. Postdysenteric arthropathy was present in one child only. Among the ten specific infections the diagnosis was made in only three instances by isolating the Sonne strain from culture of the stools. This is only to be expected in the chronic infection. Serum agglutination was present in all, mostly of the Sonne type, in dilutions of one in 25 to one in 250. Other strains, separated or associated with the Sonne strain, were Flexner V, Y and Z. Among fifteen of fifty children admitted for non-enteric complaints, positive reactions to the Sonne strain in the above dilutions were further encountered (Signy) which suggests a high susceptibility and prevalence in childhood. In regard to treatment, the author advocates a change to the acid reaction of the stools by means of lacto-dextrin or active preparations of lactic acid bacilli in milk. The diet should consist of bone and vegetable soups, cereals, mashed potatoes, toast, jellies, custard and fruit juices. Bismuth, kaolin and grey powder are usually used during periods of diarrhoea. In this series there was little evidence of spread to other members of the household.

Management of Mild Paralysis.

NEIL HOBHOUSE (*The Practitioner*, July, 1930) advises a trial of exercises and massage for all children with permanent nervous lesions, however unpromising. He divides them into two classes, progressive and residual. The progressive class comprises the abiotrophies, lenticular degeneration and post-encephalitic Parkinsonism, and a small proportion of diplegias combined with athetosis, and the myopathies. The residual paralyses are more numerous and important. For them drugs are useless. The first step is accurate decision as to the neurones affected and the more difficult question as to whether rigidity is pyramidal or extrapyramidal. He recalls that in the pyramidal infantile lesions—the abdominal reflexes are usually retained. Lead pipe rigidity

and tremors are fairly constant in extrapyramidal lesions at the mid-brain. Children with lower motor neurone lesions are the only ones in which faradism does any good, and massage is much more profitable with them than with others. In forming a prognosis in children with spastic lesions the degree of intelligence, the amount of spasm and the presence or absence of fits are the best guides. If orthopaedic measures can bring about an immediate increase in the range of the child's activities, this is the first step to take. If spasm is the sole impediment to free active movement, there is scope for great improvement, but the spasm will be reduced only by free active habitual movements. The child does not need rest, but continuous active exercise. Thus if one arm is paretic and little used, the sound arm should be bandaged to the side until the other becomes useful and then bilateral symmetrical exercises, such as skipping, can be introduced. For the diplegic, education in progression in a walking frame and then with a perambulator will achieve wonders in some instances. Educational facilities must be provided for all types of patient and every effort made to combat an "inferiority complex." If it occurs, a special school is necessary. The prognosis for dysarthria which is usually a local spasm, is very good, but is a contraindication for sending the child to an ordinary school. The medical practitioner is called upon to fight a losing battle in the progressive paralyses and he should make this clear to the relatives, though the course is frequently extremely slow and there is frequently, as in Friedreich's disease, a prospect of the patient doing fair work up to the third decade. For the myopathies the prognosis is extremely bad, few patients reaching adolescence, so it is not justifiable to press them in any way, but to secure general recognition of this fact. In the children with hyperkineses, athetoid or choreiform, the prospects of improvement are poor.

Human Contagion and Tuberculous Infection.

BERNARD SCHLESINGER AND P. D'ARCY HART (*Archives of Disease in Childhood*, June, 1930) criticize the view that children of tuberculous ancestry inherit a predisposition to tuberculous infection and deprecate the English fashion of allowing infants to remain with tuberculous parents. They consider that a strong family history of tuberculosis may determine the subsequent course of the infection once it has taken place, but does not render the child more liable to take the infection. They reached these conclusions after investigating the percentage of positive tuberculin reactions in children exposed in tuberculous households to relatives with non-pulmonary tuberculosis and found them to be no higher than among children in non-tuberculous households. One hundred and

eighteen London children of the London class were examined, 94 of whom were less than eleven years old. They were compared with 513 children from non-tuberculous homes.

ORTHOPÆDIC SURGERY.

Chronic Arthritis.

E. G. VRTIAK AND E. P. JORDAN (*Journal of the American Medical Association*, March 22, 1930) consider that no definite relationship between the menopause and chronic arthritis has been demonstrated from a series of clinical histories which they present. A history of rheumatic disease in the family and the history of enteric fever occur often enough to warrant more detailed investigation. Secondary anaemia is frequent in infective arthritis, while an erythrocytosis is common in the hypertrophic form. Leucocytosis is a usual occurrence in infective arthritis, but leucocytosis and leucopenia occur with about equal frequency in the hypertrophic type. A questionable tendency toward a *plus* metabolic rate in infective and toward a *minus* rate in hypertrophic arthritis is evident. Positive reactions to the Wassermann test were obtained in 10-5% of fifty-seven patients with arthritis. This percentage is somewhat higher than that usually found in similar age groups of non-arthritic persons. Foci of infection were discovered in a high percentage of patients with infective or hypertrophic arthritis. In many hypertrophic as well as infective types treatment of these foci resulted in considerable improvement. Some patients became much better in the face of unremoved foci of infection.

Implantation Method of Skin Grafting.

O. H. WANGENSTEEN (*Surgery, Gynecology and Obstetrics*, March, 1930) describes a method of implanting skin in extensive denuded areas by means of a blunt sewing needle which is used to bury small portions of skin, two to four square millimetres in area, beneath the granulation tissue. The skin is prepared by two preparations of half strength tincture of iodine followed when dry by a saturated solution of sodium thiosulphate in 70% alcohol. The graft is cut in one piece about 5.0 by 7.5 centimetres (two inches by three) and is subsequently cut into the smaller fragments with sharp scissors.

Rupture of Tendons of the Hand.

M. L. MASON (*Surgery, Gynecology and Obstetrics*, March, 1930) discusses the various types of rupture of tendons of the hand. The extensor tendon to the distal phalanx of the finger is frequently ruptured by direct violence and frequently undergoes repair if splinted in hyperextension. When operation is necessary, a posterolateral incision affords good access and does not lie over the line of

suture. The author discusses the anatomy of the extensor tendons of the fingers and the various syndromes characteristic of their rupture at given points. So-called "spontaneous rupture" is most frequently the result of previous trauma which has led to disturbances in the blood supply of the tendon, resulting in an aseptic necrosis, the tendon fibres being swollen, poorly stained and hyalinized. The actual "spontaneous rupture" occurs at variable intervals following the original trauma, but generally on occasions when very little actual trauma has occurred. The characteristic loss of function associated with a minor degree of trauma has frequently led to the erroneous belief that the condition is a paralysis. In discussing autoplasmic tendon graft the author stresses the fact that surrounding tissue should always be transplanted with the graft.

A Brace for Foot Correction in Children.

E. D. MCBRIDE (*The Journal of Bone and Joint Surgery*, January, 1930) describes a removable foot brace composed of a thin metal heel plate and a thin piece of sole leather extending forwards to the base of the great toe and containing a pocket for an adjustable layer of sole leather, the thickness of which may be varied to meet with individual requirements. Over this is a wedge of sponge rubber extending forwards to the base of the first metatarsal and backwards to the beginning of the prominence of the heel conforming to the contour of the arch.

Epiphysitis in the Foot.

M. S. BURMAN AND P. W. LAPIDUS (*The Journal of Bone and Joint Surgery*, January, 1930) describe an unusual appearance of the accessory scaphoid and proximal epiphysis of the fifth metatarsal of the foot which they interpret as epiphysitis. The patient complained of a tired feeling in feet and legs and a bony swelling on the inside of each foot which was in the region of the scaphoid. Radiographic examination demonstrated a patchy, moth-eaten appearance in the positions indicated above which vanished about nine months later. The authors consider this condition to be similar to Osgood-Schlatter's disease and the various other epiphysitis in spite of the absence of tenderness.

Reduction of Fractures.

ROBERT SOUTER (*The Journal of the American Medical Association*, May 17, 1930) describes an apparatus for obtaining general relaxation of the soft parts in the reduction of fractures and dislocations of the long bones. The apparatus consists of a rod two metres (eighty inches) long with a right angle bent at one end. At the end of this right angle is a hook and at the other end of the rod is a hook. The rod is made up of several pieces so that it may be taken apart and put

in a small case. Each section is about fifty centimetres (twenty inches) long. It is made of tubular steel and not of iron piping, as the latter does not stand the strain. Each tube is fastened to the next by a steel rod which is inserted in the tube. The steel rod should not bend and should be very strong. There are two webbing straps 115 centimetres (forty-six inches) long and 8.75 centimetres (three and a half inches) wide with a heavy steel ring in each end. The webbing should be strong and double and the ring should be stitched solidly so that the stitching will not rip. There is a spring balance that will measure 45 kilograms (one hundred pounds) and there are two double block pulleys with heavy cord. These block pulleys are 7.5 centimetres (three inches) long and 3.75 centimetres (one and a half inches) broad and there are rings for hooks at each end.

Solitary Bone Cysts.

A. BRUNSCHWIG (*The Journal of Bone and Joint Surgery*, January, 1930) describes a solitary bone cyst of the humerus of thirty-eight years' duration which had an extensively calcified fibrous lining and contained fluid loaded with cholesterol crystals. In the same patient several joints exhibited *arthritis deformans*, but cultures could not be obtained from cyst lining and synovia of the affected joints. The author raises the question of a possible bacteriological relationship between the two conditions.

Bacteriology of Apparently Normal Bones.

J. V. SANTOS (*The Journal of Bone and Joint Surgery*, January, 1930) describes experiments conducted on bone of apparently normal individuals and of apparently healthy dogs. Aerobic cultures from the cortex and the marrow of apparently normal human bones were sterile. Aerobic cultures from the cortex and marrow of bones from ten live and apparently healthy dogs showed *Staphylococcus aureus* in two samples and *Bacillus subtilis* in one sample. *Streptococcus* and *staphylococcus* recovered in cultures from the lining and contents of some cases of solitary bone cysts are not ordinarily found in normal human bones.

Stimulation of Bone Growth by Venous Stasis.

H. E. PEARSE AND J. J. MORTON (*The Journal of Bone and Joint Surgery*, January, 1930) discuss the various chemical changes associated with the stimulation of bone growth and describe various experiments which demonstrate accelerated union of bone in the presence of venous stasis. Such hyperaemia promotes healing of fractures in which delayed union has occurred, but will not take the place of surgical operation when muscle is interposed between the fragments or faulty alignment exists or in the presence of a pseudarthrosis.

Special Articles on Diagnosis.

Contributed by Request.

XII.

TUMOURS OF THE NECK.

THE term tumour is here used in its broadest sense to include all swellings, whether of developmental, inflammatory or neoplastic origin. Because so many of these swellings are situated beneath the deep fascia and often beneath muscles as well, the determination of the exact size, position and consistency may be difficult. It is not easy to diagnose with certainty fluctuation in an inflammatory mass originating from the coalescence of infected deep cervical glands; recovery is hindered if an incision be made in cases in which resolution would occur. Where the tumour is not due to an acute inflammatory condition, the recognition of fluctuation is not of such importance to the patient's welfare, but may be of considerable value in arriving at the correct diagnosis. When a tumour situated deeply in the neck has become obvious to the patient, it is of considerable size; otherwise the complaint is usually that of stiffness in the neck. Pressure on nerves, sufficient to cause a patient to notice its effect, is rare; it is common to find at operation the accessory nerve embedded in and adherent to tuberculous or malignant glands without any clinical manifestation of pressure on the nerve being present before operation.

With certain exceptions, notably Hodgkin's disease and acute inflammatory conditions, there is a fairly well marked age incidence for many tumours in the neck. Peculiarly enough, some developmental abnormalities do not manifest themselves until after puberty. Sebaceous cysts and lipomata occur especially at the back of the neck, but most other tumours are found in the anterior and posterior triangles.

Enlargement of the scattered superficial lymphatic glands along the course of the external jugular vein may follow infections of the skin areas drained by them. The submental lymphatic glands, also superficial, form part of a chain reaching round to the mastoid process, but the chief lymphatic glands are found along the internal jugular vein. These deep cervical glands receive eventually the lymph drainage from all structures, superficial and deep, in the head and neck. Swellings having their origin in these glands will at first be deep to the sterno-mastoid muscle, but as they enlarge will encroach upon one or both triangles of the neck. Tumours arising from the salivary glands are found over those structures and tumours arising from the thyroid and its developmental remains are situated in the mid-line and to either side of it, from the sternum up to the floor of the mouth and root of the tongue.

The diagnosis must be made only after a careful survey of the patient's history, age and general condition, aided by an accurate clinical examination which should enable the surgeon to determine the position, shape, size and consistency of the tumour and its attachments to surrounding structures. The neck is usually best examined with the muscles relaxed by allowing the head to fall forward; further information may be gained by a second examination with the neck extended. Examination of the submaxillary and submental regions is facilitated by palpation with one finger in the mouth and one outside. The tongue and tonsils should be examined in all cases and the pharynx, larynx and œsophagus may require endoscopic inspection. The use of the Wassermann test applied to the blood is at times necessary to confirm a diagnosis. In the writer's opinion tuberculin tests are of little diagnostic value.

Tumours Arising from Developmental Remains: Branchial and Thyroglossal Cysts, Dermoids, Cystic Hygroma.

Branchial cysts are due to the non-obliteration, in fetal life, of the cervical sinus. Consequently they are lined with squamous epithelium and are found anywhere along a

line leading from the pharynx, near the base of the skull, downwards and forwards between the internal and external carotid arteries towards the anterior border of the sterno-mastoid muscle. Although congenital, these cysts do not usually become evident until adult life, possibly because associated with them is some lymphadenoid tissue the repeated infection of which results in secretion from the lining cells.

Thyroglossal cysts originate in the remains of the hollow ventral outgrowth from the primitive pharynx between the first and second arches. The distal part of this outgrowth takes part in the formation of the thyroid gland and normally the duct leading to the alimentary canal disappears. Such cysts are in the mid-line, except those in front of the thyroid cartilage, because these become pushed to one side, usually the left, by the growth of the cartilage. They may occur just above the isthmus of the thyroid, in front of the thyreo-hyoid membrane, above the hyoid bone, in the floor of the mouth or at the root of the tongue beneath the *foramen caecum*. Unlike branchial cysts, they appear for the most part during the first decade, although their appearance may be delayed until adult life. Like branchial cysts they are subject to attacks of acute inflammation.

Dermoids due to the inclusion of the skin at junctional regions of the neck are very uncommon.

The existence of branchiogenetic carcinoma, formerly supposed to originate in the same vestigial structures that give rise to branchial cysts, is very doubtful and of little clinical importance.

Cystic hygroma is a congenital condition, probably lymphangiomatous in nature, forming a painless multilobular fluctuant swelling in the lower part of the neck in infants, is sometimes associated with thickening of the skin over it, is subject to attacks of acute inflammation and gives rise to no difficulty in diagnosis.

Branchial cysts usually appear in early adult life, form painless fluctuant swellings beneath the sterno-mastoid, enlarge very slowly and are most often confused with caseous tuberculous glands. An acute inflammation may, however, occur round the cyst which then resembles an acutely inflamed lymphatic gland. The length of time that the lump has been present and the absence of enlarged surrounding glands serve to differentiate the conditions. The possibility of a subfacial lipoma cannot be excluded without using an exploring needle, but such lipomata are very rare in this region. Aspiration of the contents of the cyst with a needle will enable the diagnosis to be placed beyond doubt, for branchial cysts contain a thin turbid fluid containing crystals of cholesterol which can be recognized under a microscope.

Thyroglossal cysts usually appear during childhood, are very liable to acute inflammation and, if above the thyroid cartilage, are situated in the mid-line and have no relation to the sterno-mastoid muscle. The other structures that most closely resemble them are aberrant thyroids which, too, are found anywhere along the track of the thyroglossal duct. Rarely such an aberrant thyroid is the only thyroid tissue the patient possesses, so that the presence of the thyroid gland in its usual position must always be verified before the excision of a tumour which may be either a thyroglossal cyst or an aberrant thyroid, otherwise the only functioning thyroid tissue may be inadvertently excised. Tumours of the thyroglossal tract should not be confused with sebaceous cysts which are situated just beneath the skin to which they are adherent by the obstructed duct of the sebaceous gland.

Sebaceous Cysts and Subcutaneous Lipomata.

Sebaceous cysts may occur anywhere in the skin of the neck, but are commonest at the back of the neck beneath the hair line; this is also the commonest position for lipomata (if the diffuse form constituting double chin be excepted). It is the attachment of the sebaceous cyst to the skin at only one point which is the characteristic feature; a lipoma is attached at several points by means of trabeculae reaching from the skin to its capsule. Both are painless fluctuant swellings, usually

rounded. Suppuration in a sebaceous cyst causes redness of the skin over it and pain and it may not be possible to distinguish between this and a suppurating subcutaneous lymphatic gland until the acute condition is relieved.

Tumours of the Thyroid Gland.

The normal thyroid gland, concealed beneath the infrahyoid muscles and overlapped by the sterno-mastoid muscle, is difficult to palpate. Enlargement results in the thinning of the infrahyoid muscles and separation of the sterno-mastoids and the altered contour of the neck becomes obvious to the patient, who may also be aware of a sense of fullness in the neck or of a feeling of pressure on the trachea. The term goitre is applied to such a swelling, although it originally meant any swelling in the neck. Such enlargement of the thyroid may involve the whole gland, may be localized to one area or to several, the resulting tumour may be smooth or nodular and its consistency much firmer than normal thyroid tissue. It is impossible in this article to discuss at length the accurate pathological diagnosis of thyroid conditions, but as certain thyroid swellings have a profound effect on the functioning of the other organs of the body, the diagnosis must at least enable the surgeon to realize the type of thyroid swelling he is called upon to treat. Such swellings occupy part or whole of the thyroid on either side of the trachea and perhaps across the front of it and, because of the attachment of the gland to the trachea, move up in the neck on deglutition and then drop back. As practically no other tumours are found in this part of the neck deep to the infrahyoid muscles, the localization of the swelling to the thyroid is usually easy.

An acute infection of the thyroid occurs, but is rare, is localized by the fascia over the gland and has all the characteristics of an acute inflammatory condition elsewhere in the neck. With this exception, thyroid swellings are painless.

A diffuse enlargement of the gland which retains its softness, occurs temporarily in some females at puberty, during menstruation and during pregnancy, but there are no symptoms and no treatment is required. A persistent diffuse enlargement may become noticeable at any age in both males and females, more often in the latter, and probably starts soon after puberty, although such diffuse enlargement is common in certain districts during childhood. The whole gland participates in this change and there may be no other symptoms. This type of enlargement of the thyroid is most probably due to the attempt of the gland to secrete an adequate amount of thyroxin in the absence of a sufficient quantity of iodine reaching the gland by the blood stream, with the result that an excess of colloid is produced which distends the vesicles. Provided that this attempt on the part of the thyroid is successful, other symptoms are absent. If, however, an insufficient quantity of thyroxin is secreted, symptoms of thyroid insufficiency will be present. Such enlargement of the thyroid is called a diffuse colloid goitre, whether the secretion of the thyroid is adequate or not.

Some colloid goitres gradually become firmer because of fibrotic changes, may become nodular and the volume may increase still further. An enlarged thyroid with a similar clinical appearance may develop without the patient being aware of previous enlargement. Such goitres are usually found after the third decade and can occur without symptoms, but because of their firmer consistency are more likely to press unduly on other structures in the neck and give rise to local symptoms. In addition, glands altered in this way very frequently elaborate a toxic secretion which manifests itself by affecting especially the cardiac muscle, less often the nervous system or the alimentary tract. Probably in the present state of our knowledge these should be called toxic goitres, smooth or nodular as the case may be, in preference to thyroids of secondary Graves's disease. These goitres may be very large and the bulk of the tumour may be behind the sternal end of the clavicles and upper end of the sternum; they may cause severe pressure on the trachea, flattening it into the so-called scabbard trachea. The tumour does not, however, become fixed to

any structures other than the trachea, and so gives the typical movements on deglutition and can usually be distinguished from a malignant condition of the gland.

Whether or not it is a distinct pathological condition, the single adenoma constitutes a definite clinical type. In any part of the gland a nodule harder than the normal thyroid tissue may appear; the size varies from that of a pea to a large ovoid tumour occupying most of one side of the gland. The size, when the patient seeks treatment, is usually between that of a walnut and that of a duck's egg. The larger ones are usually partly solid and partly cystic and fluctuation may at times be elicited. Such tumours are slow growing and may persist for years without symptoms, but eventually most, if not all, give rise to toxic symptoms manifested especially by their effects on the cardiac muscle. The clinical characteristics of these tumours which are usually noticed in the third decade, resemble those of other thyroid tumours and usually but little difficulty is encountered with the diagnosis of a rounded painless swelling over part of the thyroid (the rest of which is not enlarged or altered in consistency) moving with deglutition and sometimes fluctuant.

In 1836 Graves described a condition which had been described very accurately by Parry in 1786 and which is now called exophthalmic goitre or Graves's disease. The distinguishing feature is the toxæmia which results in disordered action of the heart, nervous system and alimentary canal together with exophthalmos. The thyroid may be but little enlarged. In early cases the gland is soft, but later, and especially after the prolonged administration of iodine, it becomes much firmer. The disease is commonest in women between twenty and forty, but a similar toxæmia, though less well defined, occurs in some patients who have had a goitre for many years, and the condition merges insensibly into the nodular toxic goitre previously described, but the exophthalmos is a distinguishing feature and is much less marked in the latter condition. Difficulty in diagnosis is presented only in early cases, when "palpitation," breathlessness, loss of weight and easily induced fatigue may be the only symptoms, and tachycardia, tremor and perhaps mild exophthalmos the chief signs. Later the diagnosis becomes obvious in most cases, even in the absence of much enlargement of the gland.

Riedel's disease, which is a chronic thyroiditis, is a rare condition in which the thyroid becomes stony hard on account of the development in it of fibrous tissue. The patient seeks relief on account of the pressure symptoms. Carcinoma of the thyroid is also uncommon and in its early stages resembles Riedel's disease, but the increase in size of the tumour is much more rapid and involvement of the cervical glands occurs early. In neither of these conditions is there any evidence of hyperthyroidism or hypothyroidism.

Swellings of the Neck Originating in the Deep Cervical Lymphatic Glands.

Probably the commonest tumours of the neck are due to acute and chronic inflammation and malignant invasion of the deep cervical glands. The patient may seek relief for the primary condition and the tumour in the neck be found only by the surgeon.

With acute inflammatory conditions treatment of the primary focus will usually be followed by rapid subsidence of the swollen glands. When this does not happen and the general symptoms and local signs persist, it is frequently difficult to determine just when suppuration commences because of the oedema and induration of the overlying tissues. The skin may even be reddened and resolution occur. Once fluctuation can be elicited, incision of the tumour is necessary, but if that sign cannot be elicited, the surgeon must be guided by the progress of the local signs and of the patient's general condition.

After acute inflammation of the glands complete resolution may not occur and the glands remain enlarged but discrete and not tender. Infected tonsils are the commonest cause of this condition and radical treatment of

the tonsils will often effect a cure. A similar chronic inflammatory condition may occur without preceding acute inflammation. Despite attention to all possible sources of infection, the glands may not diminish in size, but may become larger. Glands the seat of such chronic inflammatory changes are especially vulnerable to invasion by the tubercle bacillus. It is impossible by clinical examination alone to determine just when tuberculous infection actually occurs. Tuberculin reactions give very little help in this respect. If, despite adequate treatment of all recognized sources of infection, the glands continue to enlarge and if they become confluent, they should be considered tuberculous and excised. The advent of softening makes the diagnosis certain, but often results in the perforation of the deep fascia, the formation of a tuberculous abscess outside the fascia and a reddening and thinning of the overlying skin. In such cases care must be taken to palpate the deep glands so that the true pathological condition is appreciated.

The deep cervical glands sometimes share in the general glandular enlargement which occurs in syphilitic affections. Hodgkin's disease affecting only the deep cervical glands is rare, as is primary sarcoma of these glands and a tentative diagnosis of primary sarcoma should be made only after an exhaustive search for some primary lesion. Secondary carcinomatous invasion is the usual form of malignant disease of the deep cervical glands. The primary growth may be obvious or it may be situated in the pharynx or larynx and require endoscopic examination to reveal it. Glands involved by carcinoma are enlarged and hard and at first discrete and movable, but later they become fixed to the surrounding tissues and by their enlargement coalesce to form a large, very hard tumour which is fixed but often painless. It must be borne in mind that most growths in the mouth are infected and part of the glandular enlargement may be pyogenic. Treatment of the primary lesion may intensify this and even lead to suppuration. It is wiser to regard all enlarged glands in the lymph drainage area of a malignant condition in the mouth as malignant with perhaps some pyogenic infection superadded.

Although no age is exempt, acute inflammation of the deep cervical lymph glands is commonest in children and on account of the pain, the tenderness and the elevation of the temperature there is little difficulty in diagnosing the nature of such a tumour. Chronic infection of the glands with eventual invasion by the tubercle bacillus is also commonest in children, although young adults are not immune. The stages at which this condition may be encountered have been described and it is only by a consideration of the history, aided by a careful examination of the throat, that the diagnosis can be arrived at. Hodgkin's disease shows a predilection for adults, but it has been found at all ages. Usually the lymph glands in other regions are involved and so the diagnosis is aided, but if only the cervical glands are enlarged, microscopical examination of an excised gland may be necessary to diagnose the condition from early malignant disease or from tuberculous infection. A rapidly growing tumour having all the characters of a malignant growth, appearing without any primary focus, is probably sarcomatous and the effect of radiation therapy should be tried before excision is contemplated.

Tumours of the Salivary Glands.

Salivary gland tumours, originating more commonly in the parotid than in the submaxillary gland, are contained at first within the capsule of the gland, but later may extend beyond this and infiltrate the surrounding tissues. When small, they can be confused only with enlargement of the lymphatic glands sometimes found over these salivary glands, but careful examination should enable the two conditions to be distinguished. Later the tumours form large irregular lumps and it may be impossible to determine whether the origin was in the parotid or in the submaxillary gland.

Calculus in the submaxillary gland causes a tender swelling in this region, increased at meal times and subsiding between meals. There is always an element of infection and the opening of the duct is inflamed; infection

spreading along the duct may by itself cause a blockage with consequent enlargement of the submaxillary gland and a skiagram of the submaxillary region is necessary to diagnose between this condition and calculus.

Tumour of the Carotid Body.

The carotid body, situated at the bifurcation of the common carotid artery, is the seat of a peculiar tumour described by Hutchinson as being like a potato. It appears as a mass in the upper part of the anterior triangle of the neck and there is a transmitted pulsation from the carotid vessels felt on palpation; it is painless, freely movable laterally, but not up and down. There is no associated enlargement of the surrounding lymph glands. The patient usually seeks relief on account of pressure symptoms. A preoperative diagnosis of this uncommon tumour is rarely possible, but an important point, recently established, is that these tumours are best treated by radiation and that if one is exposed at operation, it is advisable to leave it and treat it by radiation in preference to excision, on account of the attendant risks of hæmorrhage and hemiplegia.

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British Medical Association News.

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at Saint Vincent's Hospital on June 18, 1930. The meeting took the form of a series of clinical demonstrations by the members of the honorary staff.

Spondylolisthesis.

DR. CHARLES OSBORN presented a man, aged twenty-two years, the subject of a severe degree of spondylolisthesis. The patient had first come to hospital five years previously on account of pain in the back which had rapidly become worse and prevented him from engaging in any athletic pursuits, although prior to this time he had been quite active and regarded himself in every way as a normal youth.

For three years he had been treated with a special brace, but in spite of this his disability had gradually become worse. Nine months before, when he came under Dr. Osborn's care, he had been unable to walk any distance without pain, to run or to climb stairs and he had complained of constant low back pain and sensation of pins and needles in the calves of both legs. Physical examination had demonstrated a definite telescoping of the trunk into the pelvis with unduly prominent iliac crests and a pronounced anterior transverse subumbilical fold, whilst posteriorly the sacrum had been prominent and a pronounced lumbar furrow had been present. Slight anaesthesia to pin prick had been noted over the third and fourth sacral segments on both sides; neither the left ankle jerk nor the plantar reflexes had been elicited.

The radiograms were demonstrated and these revealed the gross displacement which had taken place in the lumbo-sacral region. The body of the fifth lumbar vertebra with its pedicles and superior articular processes was displaced into a vertical position immediately in front of the first sacral body, its laminae and spinous process occupying a normal position. The remaining lumbar vertebrae were displaced downwards and somewhat forwards, so that the fourth lumbar vertebra occupied the normal position of the fifth in the horizontal plane, but in a much more anterior position. The skiagram also revealed a *spina bifida occulta* of the second, third and fourth sacral vertebrae.

Operation had been undertaken seven months before with a view to stabilizing the spine. The operation had included a Hibbs fusion of the third, fourth, fifth lumbar

and first sacral vertebra combined with an angular bone graft taken from the crest of the ilium which was morticed into the ala of the sacrum, the long limb being fixed to the split spinous processes of the third, fourth and fifth lumbar vertebrae. Postoperative treatment in a plaster bed for three months and spinal support up to date had resulted in definite amelioration of all symptoms.

Injection Treatment for Internal Haemorrhoids.

Dr. Osborn also gave a practical demonstration of the technique he employed for the injection of internal haemorrhoids. He pointed out the advantages of this treatment and its indications and possible complications. The special type of fenestrated speculum, syringes and needles used were explained, and a patient was treated by the submucous injection method, Morley's 5% phenol in almond oil solution being used.

Recurrent Pancreatitis.

DR. A. E. ROWDEN WHITE showed a man, aged thirty-eight years, who had suffered from recurring attacks of pancreatitis since 1919. Acute pain would develop suddenly in these attacks in the epigastric region and apparently without any known dietetic error. The pain had often been agonizing and accompanied with incessant vomiting and the duration of an attack had varied from a day to a week, the loss of weight being very pronounced. At first there had been intervals of three to six months between attacks, but they had become more frequent and had recurred every three to four weeks. In 1925 he had been operated on during one of the severe attacks associated with jaundice and areas of fat necrosis had been observed on the peritoneum and omentum. This had been followed by a slow convalescence for twelve months. He had lost twelve kilograms (three and a half stone) in weight in the last six months and his signs and symptoms were those of *diabetes mellitus*, his fasting blood sugar being 0.156. X ray examination of his gall bladder revealed no absorption of Graham's dye. Under appropriate dietetic and "Insulin" treatment he had gained 4.5 kilograms (ten pounds) in weight during the last two months.

Nephritis and Nephrosis.

Dr. Rowden White's second patient was a man, aged thirty-six years, who was suffering from mixed nephritis and nephrosis. The patient had previously been ill eighteen months before and had been treated for six months; the blood urea had been thirty milligrammes per hundred cubic centimetres. Three and a half months previously he had been admitted to hospital with general anasarca and serositis and the blood urea content had been 440 milligrammes per hundred cubic centimetres. Urea concentration had been poor. The urine had contained much albumin and on microscopical examination numerous blood cells, hyaline and granular casts and pus cells had been found. For weeks there had been fluctuations in the cellular elements of the urine and in the quantity of the albumin and on one occasion the urine had been practically free of these. Simple diuretics and intravenous glucose injections had failed to increase the quantity of urine or to alter the oedema. A fortnight previously numerous small punctures through the skin of his legs had drained him of a great many pints of fluid and at the time of the meeting he was almost free of oedema and was passing from 1.2 to 1.6 litres (forty to fifty-five ounces) of urine every day, as compared with half that amount before drainage was carried out. Since then his blood urea was 103 milligrammes *per centum*, although up till that time it had averaged 129 milligrammes from the time of his admission. Throughout his illness his blood pressure had been 160 millimetres of mercury. There was a definite secondary anaemia—the haemoglobin value was 70%, the erythrocytes numbered 3,760,000 and the leucocytes 13,500 per cubic millimetre, the colour index was 0.9. The Wassermann test had yielded no reaction. The patient was taking a full mixed diet.

Pulmonary Conditions.

Dr. Rowden White then showed two patients who were suffering from pulmonary conditions. He showed skia-

grams taken both before and after the induction of artificial pneumothorax.

The first patient was a lad, aged seventeen years, who had had a cough since babyhood. The sputum had latterly averaged 120 to 180 cubic centimetres (four to six fluid ounces), was offensive and contained no tubercle bacilli. Definite pulmonary osteoarthropathy was present and the X ray films revealed extensive bronchiectasis at the bases.

The second patient was a woman, aged thirty-two years, who gave a history of nine years' ill health, progressive loss of weight, mild pyrexia and very little sputum which on repeated examination had not been found to contain tubercle bacilli. The upper two lobes of the right lung showed signs of chronic pneumonitis, it having been impossible by the aid of "Lipiodol" to demonstrate any bronchiectatic cavities. A laryngoscopic examination suggested the probability of a tuberculous lesion.

Excretion Pyelography.

Interesting films were next shown which clearly demonstrated the value of recently introduced excretion pyelography by means of "Uroselectan" injected intravenously. Dr. White stated that it was claimed that in addition to giving good pyelograms, the method was helpful in determining the relative functions of the two kidneys.

Myeloid Leuchæmia.

In conclusion Dr. Rowden White showed a graph of the progress of a patient suffering from myeloid leuchæmia treated twelve months before by X radiation of the long bones. Before treatment the leucocytes had numbered 205,000 per cubic millimetre and later on the number had dropped to 20,000 and had remained at that level ever since.

Hypertension and Renal Glycosuria.

DR. J. W. GRIEVE showed a female, aged thirty-three years, suffering from hypertension associated with renal glycosuria. She had been well until ten years before and had then developed abdominal pain and vomiting which necessitated her admission to hospital. Here sugar had apparently been found in her urine, for, although the condition was thought to be appendiceal, she had not been operated upon. Several months later she had been operated upon for a retroverted uterus and subsequently when she became pregnant sugar had been found in her urine. Sugar had been present constantly since.

Dr. Grieve explained that the patient was still having attacks of abdominal pain and vomiting, some of which were associated with prostration and drowsiness. Headaches were frequent and there was a great tendency towards somnolence. There was a history of several attacks with loss of consciousness. She was rather tremulous at times. Slime and undigested vegetable matter were often present in the stools. Her previous history had been good. Her family history was interesting. Her father had had glycosuria for over twenty years. One sister had glycosuria following a recent pregnancy; this had not yet been investigated.

Examination revealed a florid faced woman with a systolic blood pressure of 195 and a diastolic pressure of 105 millimetres of mercury. The urine contained sugar, but no diacetic acid and no albumin. The heart was slightly enlarged, the apex beat was in the fifth intercostal space ten centimetres (four inches) from the middle line. The sounds were clear. The abdomen was of the viscerotonic type; the right kidney was palpable; diffuse tenderness was present; the uterus was retroverted. The Wassermann test had failed to yield a reaction. Urea concentration was satisfactory. The sugar tolerance curve showed renal glycosuria. The eye grounds appeared to be within normal limits.

This patient was shown because of the association of renal glycosuria and hypertension together with the possible hereditary and familial factors.

Chronic Circumscribed Oedema.

Dr. Grieve's second patient was a woman, aged nineteen years, suffering from chronic circumscribed oedema of the left upper limb of unknown aetiology. She had

injured her left elbow when she fell on it two years previously. Following the injury there had been a great deal of pain and swelling of the left forearm and hand. An X ray examination at that time had revealed no abnormality. Since her injury there had been thickening of the elbow region, the left forearm, wrist and to a degree the left hand. This had varied considerably and was often associated with considerable oedema. It was always painful on pressure. Vasomotor phenomena had been present in all four limbs, but they had been much more intense in the left forearm and hand; rubor cyanosis, sweating *et cetera* had been noted. She complained of some pain in both knees. She had attacks of right-sided abdominal pain associated with vomiting. Her appendix had been removed in January, 1929, and a right ovarian cyst had also been treated. Attacks were still occurring and the longest interval of freedom in the past eighteen months had been two weeks. Emotional and hysterical attacks (visual and speech defects) had been common. The family history revealed nervous instability in both parents.

Examination revealed enlargement of the distal half of the left arm, left forearm, wrist and hand. This area appeared to be tender on handling. The circumference of the limb in these areas exceeded the right limb by 1.8 to 3.75 centimetres (three-quarters to one and a half inches) at various levels. This area was definitely more cyanosed and colder than on the right side. There was excessive skin action on this left side. There was a small gland in the left axilla. Pulsation was felt equally well in both brachials, but it was rather more difficult to feel the left radial and ulnar vessels. The blood pressure was the same in both brachial arteries. Sensation appeared to be unaffected. Abdominal examination revealed tenderness in the right iliac fossa. The Wassermann test had yielded a strong partial reaction to the Kolmer method and a very feeble partial reaction to the Harrison method. The basal metabolic rate was +10. The patient had had a course of antisyphilitic treatment with no effect. This patient was shown in order to obtain an expression of opinion *re* the advisability of periarterial sympathectomy.

Abscess of the Lung.

Dr. W. J. NEWING showed a male patient, aged thirty-nine years, who was being treated by artificial pneumothorax for abscess of the lung due to a hydatid cyst. Eighteen months previously he had suddenly coughed up about 120 cubic centimetres (four ounces) of pus and blood. Nothing suggestive of hydatid had been observed in the discharge. The Casoni test had yielded a strongly positive result. X ray examination had revealed an abscess about the middle of the right lung, midway between the hilum and periphery. It had been considered unsatisfactory for operation owing to the distance of the focus from the parietal pleura. Artificial pneumothorax had been induced and the intrapleural pressure had gradually been raised over a period of seven months to +20 centimetres of water without appreciably displacing the mediastinum. The whole time there had been a discharge of about thirty cubic centimetres (an ounce) of purulent sputum every day. At this point, about three months previously, the patient had coughed up a large quantity of hydatid material. The high intrapleural pressure was being kept up and rapid improvement was occurring. The discharge was small in amount and decreasing. The general condition was excellent.

Myxoedema Following Thyroidectomy.

Dr. Newing also showed a woman, aged sixty-four years, who gave the history that in 1922 she had presented the usual features of toxic adenoma—thyroid enlargement, tremor and moist skin. Auricular fibrillation had also been present and her weight had dropped to 56.7 kilograms (nine stone) from the normal 69.3 kilograms (eleven stone). The basal metabolism estimation results were not available.

Thyroidectomy had been performed in September, 1922. The patient had not been observed again until 1926, when her weight was 88.2 kilograms (fourteen stone). Her memory had been very poor; she had been dull and

emotional and had complained of the cold. Her skin had been dry and hair falling and cracking. The pulse had been regular with a rate of 70 to 80. Basal metabolic rate estimation was not available.

Thyroid treatment had been instituted and improvement had occurred, but it was not until the daily dose had been increased to one gramme (fifteen grains) that a satisfactory result was obtained. With the dose at 0.12 gramme (two grains) three times a day the basal metabolic rate had still been -20. The weight was 69.3 kilograms (eleven stone). At no time had there been any sign of parathyroid deficiency.

Oesophageal Spasm.

Dr. Newing's third patient was a woman, aged forty-seven years, who for the past three years had had periodic attacks of regurgitation of undigested food. The onset had been coincident with great domestic worry. The condition improved markedly with rest and belladonna, with rapid weight increase, but it relapsed. The Wassermann test gave no reaction. X ray examination revealed a dilatation of the oesophagus at the cardiac orifice measuring eight by four centimetres. No instrumentation had been carried out, as the condition was regarded as being dependent upon an anxiety neurosis.

Skiagrams.

Dr. H. M. HEWLETT showed a number of interesting X ray films. These were of various subjects and included a case of degenerative changes in the mucous membrane of the stomach, almost a gastric polyposis, or at least marked turgescence of the membrane.

Another interesting case was a definite small globular projection on the lesser curvature side of the stomach with spasm opposite, which had been regarded as a penetrating ulcer, but at operation was found to be a small diverticulum without any signs of inflammation.

Another gastro-intestinal condition was an example of an oesophageal diverticulum occurring at the level of the first dorsal vertebra. A film made in the lateral view showed a filling of the sac which was about the size of a large walnut and there was also a good filling of the oesophagus. An interesting point was that the sac was pressing on the oesophagus, causing a definite narrowness, explaining the difficulty in swallowing in some of these cases.

Another gastro-intestinal case was that of a very large pancreatic cyst. The diagnosis was made by the pressure effect it had on the stomach after the barium meal.

Lung films included a secondary carcinoma of the lungs, the primary being a carcinoma of the prostate. There was no evidence of any secondary involvement of bone about the pelvic girdle—the usual position for metastases from the prostate.

A secondary sarcoma of the lung was also shown, a primary being in the ilium.

Another bone condition was a large expanding cyst in the mandible, which turned out to be an adamantoma.

The skull cases shown included a Paget's disease and a syphilitic osteitis, and the latter showing the destruction and reproduction of bone, and the former one the reproduction alone, especially from the outer table.

Another interesting case was a calcification of the pelvic ligaments between the tuberosity of the ischium and the sacrum on one side. The curved medial border was well defined. This calcification was the result of a severe trauma.

A good example of Klippel-Feils disease was also shown, and this exhibited the characteristic bony abnormalities in the dorso-cervical area.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Sullivan, Arthur Bernard, M.R.C.S., 1928 (England).
L.R.C.P., 1928 (London), 124, Ben Boyd Road,
Neutral Bay.

Public Health.

CONFERENCE ON INDUSTRIAL HYGIENE.

THE fourth Conference on Industrial Hygiene was held at Canberra at the invitation of the Prime Minister of the Commonwealth on March 13, 1930. The conference was held as a result of the recommendations of the Royal Commission on Health, endorsed by resolution of the Federal Health Council. The following delegates attended: Dr. J. H. L. Cumpston, Director-General of Health for the Commonwealth; Dr. K. R. Moore, Director of the Division of Industrial Hygiene, Commonwealth Department of Health; Dr. C. Badham, Medical Officer of Industrial Hygiene, Department of Public Health, New South Wales; Mr. R. C. Huntley, Acting Chief Inspector of Factories and Shops, New South Wales; Dr. T. L. O'Reilly, Chief Medical Officer, New South Wales Government Railways and Tramways; Dr. H. N. Featonby, Department of Public Health, Victoria; Mr. H. M. Stevens, Secretary for Labour and Chief Inspector of Factories, Victoria; Dr. J. Coffey, Chief Commissioner for Public Health, Queensland; Dr. E. Angus Johnson, Central Board of Health, South Australia; Mr. J. P. Burnside, Chief Inspector of Factories and Steam Boilers, South Australia; Mr. A. C. Bradshaw, Chief Inspector of Factories, Western Australia; Dr. J. F. Gaha, Chief Health Officer, Tasmania; Mr. E. J. Tudor, Secretary, Public Health Department, Tasmania.

The first session of the conference was held in conjunction with the Federal Health Council and was opened by the Minister for Health of the Commonwealth, the Honourable Frank Anstey.

At the joint session three important matters were considered. The first was the question of pulmonary disease in employees of the metalliferous mining industry of Western Australia. It was decided to postpone action in regard to this subject until the return of the Australian delegates from the International Conference on Industrial Hygiene to be held in South Africa in August, 1930, under the auspices of the Industrial Section of the League of Nations.

The second subject discussed was the medical inspection at regular intervals of persons employed in handling food. After discussing the danger of infection from these persons, the members of the conference came to the conclusion that the legislative powers at present in force in each State are sufficient to deal with all known dangers and that inquiries directed towards the sources of actually detected infection, together with the supervision of certain industrial groups now in force, are, in the present state of scientific knowledge and public opinion, as much as can be considered justifiable.

The third subject considered was accident prevention and "safety first" measures. In regard to this matter the following resolution was adopted:

This Conference expresses its definite conviction that official action directed towards the organization of measures for the prevention of accidents is urgently necessary.

It considers that this movement should be organized in each State by the State Government.

The form of organization suggested is a State Council including representatives of State Departments concerned, and of employers and employees as well as other influential organizations concerned.

The Conference requests the Commonwealth Government to approach the States with the object of organizing this important work on national lines.

The Commonwealth Department of Health.

At the subsequent sessions of the Industrial Hygiene Conference the first subject on the agenda paper was a summary of the activities of the Division of Industrial Hygiene of the Commonwealth Department of Health. The most important part of this section is that dealing with field investigation. Since 1926 clinical and radiological

examinations have been carried out of all metalliferous mine employees in Western Australia. This work entailed the examination of between three and four thousand men each year. A report of the findings up to 1929 was published in the "Transactions of the Australasian Medical Congress (British Medical Association), Third Session."

The occurrence of dermatitis among rubber workers has been investigated and a report on 104 cases of dermatitis has been issued. Research has been made into certain aspects of lead absorption among the employees of the Broken Hill group of mines and the smelter works, Port Pirie. The results of this research were published in THE MEDICAL JOURNAL OF AUSTRALIA of February 16, 1929. Among other questions investigated have been the occurrence of accidents reported in the daily press of Melbourne during 1926, the health of employees in gas-making plants in Melbourne, the health of women employed in industry in Victoria, the health and working conditions of employees in the mining industry in Victoria and Tasmania, the protection of workers from injury by X rays and radium. The ventilation and lighting of printing establishments in Melbourne, Sydney and Canberra was being investigated at the time of the meeting.

Matters Resulting from Previous Conferences.

Progress in the various States in the direction contemplated by the recommendation of previous conferences was considered. The various matters included hygienic standards, standards of qualification for factory inspectors, the reporting of accidents, medical inspection in unhealthy industries, interchange of official visits, the correction of visual and dental defects, the painting industry, the exclusion from certain dusty industries and compensation of employees suffering from active tuberculosis, the application of the principles of industrial hygiene to clerical workers in offices and departments.

Industrial Cancer.

A review of some of the facts of industrial cancer in Great Britain is given and it is pointed out that in Australia the extent of industrial cancer is not known. The disease is compensated under the laws of Queensland and Western Australia and may be included in the definition of an "injury" in the *Workers' Compensation Act of New South Wales*.

Resolutions of Conference.

After discussion the following resolutions were adopted:

1. In view of the results of the report in accordance with Resolution No. 12 of the Third Conference of 1927, this Conference considers that an investigation is desirable into the psychological aspects of accidents to minors in industry, and that a Committee consisting of Drs. O'Reilly, Badham and Moore, and the Chief Inspector of Factories, New South Wales, should pursue inquiries on this subject.

2. In reaffirming Resolution No. 13 of the Second Conference of 1924 (also reaffirmed at the Third Conference of 1927) this Conference draws the attention of the proper authorities to the growth of industrial operations in Australia and the consequent necessity for increased knowledge on the part of factory inspectors.

3. This Conference recommends that at its next and successive meetings provisions should be made upon the agenda for the discussion of administrative methods and working of factories departments.

4. That the Medical Officer of Industrial Hygiene, New South Wales, and the Medical Inspector of Factories, Victoria, be asked to prepare reports for discussion by the next Conference on the subject of standards of physical fitness in children to be employed in industry.

5. This Conference reaffirms Resolution No. 7 of the Third Conference of 1927 regarding the compensation and exclusion from industries in which there is exposure to phthisis-producing dust, of

persons suffering from active pulmonary tuberculosis as at present carried out in the Mining Industry in Western Australia and Broken Hill.

6. This Conference draws the attention of the State Governments to the continued occurrence of cases of lead poisoning in the electric accumulator industry in certain States and the necessity for special consideration of the hazards involved.

7. This Conference considers that in regulations dealing with mechanical refrigeration those covering the maintenance, testing and filling of steel cylinders for the storage of compressed gas should be based on the Draft Standard Rules of the Standards Association of Australia.

Industrial Accidents to Minors.

In an appendix to the report an analysis is made of 982 industrial accidents to minors. Particulars of these accidents were received from the State Labour Departments of New South Wales, Victoria, Queensland and South Australia and from the Government Railway Departments of New South Wales and Victoria.

The 982 persons comprised 815 males and 167 females. Machinery was responsible for 45.4% of all accidents, 12.1% were caused by stepping on or striking against obstacles, 9.5% were caused by falling objects, 8.5% by falls of persons, 7.9% by handling without machinery, 6.2% by hand tools, and smaller percentages by other means.

The causes of the accidents are set out in a table. No less than 67.3% were the result of want of care by the injured person, 19.8% were the result of "other causes or not stated," 4.6% were caused by defect in the plant, 4.1% by want of care on the part of others, 2.2% by defect in the plant together with want of care by the injured person, 1.1% by want of care by the injured person and by others, 0.8% were the result of physical or mental disabilities. Want of care on the part of the injured person was more common among females than among males.

The numbers and percentages of injured people are set out in a table according to their ages next birthday. It is pointed out, however, that without figures showing the ages of minors employed in the various States these data are of little value. Further reference thus need not be made to them. Of all accidents reported 15.0% occurred during the first three months of employment and 39.7% during the first twelve months. The respective percentages for accidents to males and females occurring during the first year of employment were 38.1 and 47.4.

It was found that there was a definite increase in the frequency of accidents towards the end of a working spell; among males 25.6% and among females 22.6% of the injury occurred during the third and fourth hours at work, as against 15.2% and 13.2% for the respective sexes during the first two hours' work. During the seventh and eighth hours 27.8% and 30.4% of all accidents were sustained by males and females respectively, as against 18.9% and 18.0% during the fifth and sixth hours' work. The distribution of accidents was fairly uniform during the days of the week. There was a slight increase in percentage during the early half of the week.

Of the 982 accidents 387 consisted of cuts and lacerations, 148 of "other injuries," 125 of sprains and strains, 125 of contusions and abrasions, 87 of amputations, 49 of burns and scalds and 35 of fractures.

Correspondence.

STERILIZATION OF SYRINGES AND NEEDLES.

SIR: The following is a rapid and economical method of "dry" sterilizing syringes and needles. A small bottle containing a few cubic centimetres of ether is carried in the case. Just before use the needle is mounted on the syringe and plunged into the ether (which immediately

sterilizes it); four or five drops of ether are then drawn up into the syringe which is turned with the needle pointing upwards; then, if the piston is worked up and down a few times, the interior of the syringe is sterilized and all traces of ether rapidly removed.

By this method a good needle will last for hundreds of injections without blunting; syringes run less risk of cracking. A very little ether will do for a large number of times and the whole process only takes a few seconds.

Yours, etc.,

L. CRIVELLI.

32, Collins Street,
Melbourne.
Undated.

THE TREATMENT OF FRACTURES.

SIR: In *The Journal of the College of Surgeons of Australasia* for March, 1930, I had an article on fractures. In your issue of August 16 Dr. Craig, in a most courteous letter, gently wonders why I seemed disinclined to endorse Dr. Hamilton Russell's views on fracture treatment, views that Dr. Craig strongly supports. These views have been elaborated at length in published articles and cannot be reviewed here at equal length. Dr. Craig is a sincere worker and thinker, and has produced an admirable paper. That I cannot agree with another serious worker's ideas matters comparatively little. We are all working and trying and succeeding and failing and modifying and trying again, and helping one another even when we disagree. And so will Dr. Craig please not take it ill that I should perhaps seem over-brusque in my refusal to accept as true what he takes almost for granted, and even fundamental? Hamilton Russell is a great surgeon and surgical thinker, and such men as he will always prefer intelligent rejection of their ideas to uncritical acceptance. I wish I could agree somehow. I am liable to error, so is he, and so are we all, but we must follow our light.

Now, those who adopt the line of treatment recommended by Hamilton Russell necessarily assume by tacit consent the correctness of the hypothesis on which it is based. To them it is, as Dr. Craig puts it, "the technical expression of a great principle." It depends on the principle, and this principle, or thesis, or hypothesis, is an assumption believed by its author to be true, and soundly based on experience, his own experience. But with all respect, I am bound to say that my experience does not support it, but contradicts it. I believe general experience contradicts it. I know we can all confirm Hippocrates's wise remark that experience is fallacious, but though we know this and beware, we have to use our experience if we are to remain intelligent. As far as my experience (fallacious as it may be) teaches me, fractured limbs treated as if displacements would occur and recur by muscular action, if not provided against, yield results far exceeding those obtained when this principle has not been followed as a working theory. It is, however, simply a working theory, and a working theory is useless unless it works. This one does work. The practice, when followed, gives results consistently successful. This is independent of any theory, any explanation. The results are there, explained or otherwise.

For testing the validity of theories, subtrochanteric fracture of the femur offers problems which make it suitable, and in the last number (July, 1930) of *The Journal of the College of Surgeons of Australasia*, Dr. Russell has an article on fractures in which he refers particularly to this fracture. May I be permitted to quote a whole page of this article?

If we refer to almost any work on fractures, we shall usually find the causes of deformity stated in some such terms as the following: "The deformity is due to three main factors, namely, (1) the causative violence, (2) the action of gravity, and (3) the pull of the muscles." In a recent contribution C. Craig, of the Launceston Hospital, points out that the last of these three agencies is evidently that to which major importance is ascribed by the authors. Undoubtedly

the muscles do transiently pull on the fragments of a broken bone and displace them with an energy that would appear to admit of no control; so that it would seem impossible to bring the fragments into good alignment while still retaining a normal position of the limb. Hence surgeons have taxed their ingenuity in the endeavour to bring the distal portion of the limb into correct relation with the unruly proximal fragment; and the only result has been to introduce an element of difficulty into the case which is not in the nature of things present.

As an example, let us suppose a patient newly admitted with a subtrochanteric fracture of the femur. On examination we find the proximal fragment being most violently pulled upon and displaced by the ilio-psoas muscle; the lower end of the proximal fragment is projecting upwards towards the ceiling as the patient lies on his back. To all appearance it would seem impossible to do other than fix the rest of the limb in a position also pointing upwards towards the ceiling and it is in the hope of preventing any such error being made that this article is being written.

The behaviour of the ilio-psoas and the fragment must be disregarded and the limb put up in normal position with an ordinary weight extension, exactly as though the seat of fracture were in the shaft of the bone, and not behaving in the disturbing fashion I have described. The entire phenomenon is in truth harmless and transient and introduces into the management of the case no need for special methods.

What, then, is the cause of the violent displacement of a fragment by muscular action during examination and why is it transient? The answer is that the displacement is the immediate result of fear and ceases to be evident the moment fear is allayed. That is to say, as soon as the surgeon has finished his manipulations and gone away. Again, we need not suppose that in the case we are considering the ilio-psoas muscle is the subject of any selective action on the part of the nervous system; it appears to me clear that under the influence of fear the entire voluntary muscular system is thrown into a state of contraction. The only difference between the ilio-psoas of the fractured limb and the rest of the muscular system is that the former alone has a loose fragment to operate upon, while the remainder of the muscular system is thrown into a condition of universal spasticity in which the performance of both skilled movements and larger movements is interfered with.

According to my observation, there are two types of subtrochanteric fracture of the femur, easily distinguished from one another, and not grading into one another. The first is the transverse "square-ended" fracture, of which in the past five or six years I have seen eight cases, and in every single one of them the patient was suffering from general *osteitis fibrosa*. Four of the fractures occurred in two of the patients, one femur first, later the other. So characteristic is this fracture that it does not seem to be met with except in cases of *osteitis fibrosa*.

But there is another type which may occur from youth to old age, and this gives a characteristic X ray appearance, the antero-posterior shadow showing a fracture that is oblique from within, outwards, and downwards. The proximal fragment is pulled, and probably also pushed, up into extreme abduction, its sharp point projecting well out, while the distal fragment lies approximately parallel with the opposite limb at a sharp angle with the proximal, drawn up towards the lesser trochanter, and separated from the end of the other fragment. This is the type that causes the greatest difficulty and defeats those who fail to treat in extreme abduction. The square-ended fractures, while needing good abduction, never cause the same trouble as the others. I have seen difficulties, and even disasters, in the practice of other surgeons who have not at first appreciated the situation and who have followed lines similar to those advocated by Hamilton Russell. In one of these the surgeon, at last in despair, did an open operation and wired the bones together, but the only result has been permanent non-union. In another the surgeon, failing to get rid of angulation, seems to have thought plating

would do it, and plated the bone. This ended in disaster, suppurative osteomyelitis being the sequel, as it is in a large percentage of plating cases. In another there was malunion at between three and four months, with the typical severe angulation and several inches of shortening, but as the callus was still plastic (although it resisted efforts to refracture under an anæsthetic), it was pulled out straight and into correct position. How? By several days of fifty pound skeletal traction in extreme abduction. In another case exactly the same occurred, and thirteen weeks after the accident the callus was caused to give way after a week of forty-five pound skeletal traction in extreme abduction, the most extreme possible. These two patients were thenceforwards kept in extreme abduction and both recovered perfectly, with excellent line and no shortening whatever. After this, am I likely to advise anybody to try the treatment of subtrochanteric fracture on Dr. Russell's principles? How could I?

Yours, etc.,

C. E. CORLETTE.

Sydney.

August 28, 1930.

RADIOLOGY AS A SPECIALTY.

SIR: May I be permitted, on behalf of the radiologists of Melbourne, to add to Dr. Wilfred Dight's statements in your issue of August 23 that we individually and as a body are entirely in accord with the principles he lays down; that, in spite of the persistence of many of our patients, we consistently refuse to discuss our X ray findings with them, much less such matters as prognosis or treatment?

Yours, etc.,

K. STUART CROSS,

President of the Section of Radiology,
Victorian Branch of the British Medical
Association.

12, Collins Street,
Melbourne.

September 3, 1930.

RENAL TUBERCULOSIS.

SIR: In your issue of September 6, 1930, Dr. H. Rutherford Darling offers some criticism of a paper by me on the diagnosis of renal tuberculosis (THE MEDICAL JOURNAL OF AUSTRALIA, August 16, 1930). In reply to Dr. Darling's letter I would like to say that my article was one of a series written for general practitioners. With that end in view I felt that the fundamentals of the matter should be dealt with in a somewhat dogmatic manner, realizing that any attempt at a comprehensive discussion of the subject would add confusion and be unduly lengthy.

I quite agree with Dr. Darling that mixed infection is very common; in fact, I would go so far as to say that in cases of any duration it is the rule rather than the exception. In the paragraph Dr. Darling quotes I was referring to the incipient phase of the disease, when it is so important that the practitioner should suspect its presence and prove it, if possible, by finding the bacilli in the urine. In these early cases, in my experience, mixed infection is not common and usually no organisms can be grown from the urine. To stain the urinary deposit by the Ziehl-Neelsen method and to look for acid-fast bacilli is surely a "simple clinical exercise in bacteriology." I have seen a number of cases in which this was neglected and yet the bacilli were easily detected. That is why I made such an insistent plea to practitioners. They see the patients first. I agree with Dr. Darling that the finding of acid-fast bacilli may lead to difficulty in identifying their nature, especially when they are few in number. In such cases I advised consultation with a bacteriologist.

When doubt exists, the cystoscopic and pyelographic findings are often conclusive.

Undoubtedly many cases are very chronic and their symptoms intermittent. It is hardly within the scope of this letter to discuss the many variations in the signs and symptoms of this important disease.

I thank Dr. Darling for his interesting comments.

Yours, etc.,

REGINALD BRIDGE.

Sydney.

September 8, 1930.

Obituary.

CLAUDE SECCOMBE BROWNE.

We regret to announce the death of Dr. Claude Seccombe Browne, which occurred at Darlinghurst, New South Wales, on September 11, 1930.

Books Received.

- SHORTER CONVALESCENCE, by Lieut.-Colonel James K. McConnel, D.S.O., M.C., with a Foreword by Sir Robert Jones, Bart., K.B.E., C.B., F.R.C.S.; 1930. London: William Heinemann (Medical Books) Limited. Crown 8vo., pp. 144. Price: 5s. net.
- MODERN INFANT-FEEDING, by Bernard Myers, C.M.G., M.D., M.R.C.P.; 1930. London: Jonathan Cape; Sydney: Angus and Robertson. Crown 8vo., pp. 160. Price: 5s. net.
- MODERN TREATMENT OF DISEASES OF THE THROAT, NOSE AND EAR, by H. Lawson Whale, M.D., F.R.C.S.; 1930. London: Jonathan Cape; Sydney: Angus and Robertson. Crown 8vo., pp. 128. Price: 5s. net.
- THE TREATMENT OF CHRONIC ARTHRITIS, by A. H. Douthwaite, M.D., F.R.C.P.; 1930. London: Jonathan Cape; Sydney: Angus and Robertson. Crown 8vo., pp. 128. Price: 5s. net.
- MALE DISORDERS OF SEX, by Kenneth M. Walker, F.R.C.S.; 1930. London: Jonathan Cape; Sydney: Angus and Robertson. Crown 8vo., pp. 192. Price: 5s. net.
- THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS, by Bernard Hudson, M.D., M.R.C.P.; 1930. London: Jonathan Cape; Sydney: Angus and Robertson. Crown 8vo., pp. 128. Price: 5s. net.

Diary for the Month.

- SEPT. 23.—New South Wales Branch, B.M.A.: Medical Politics Committee.
- SEPT. 24.—Victorian Branch, B.M.A.: Council.
- SEPT. 25.—South Australian Branch, B.M.A.: Branch.
- SEPT. 25.—New South Wales Branch, B.M.A.: Branch.
- SEPT. 26.—Queensland Branch, B.M.A.: Council.
- OCT. 1.—Victorian Branch, B.M.A.: Branch.
- OCT. 2.—Federal Committee of the B.M.A. in Australia.
- OCT. 2.—Queensland Branch, B.M.A.: Council.
- OCT. 3.—New South Wales Branch, B.M.A.: Annual Meeting of Delegates of Local Associations with the Council.
- OCT. 3.—Queensland Branch, B.M.A.: Branch.
- OCT. 7.—New South Wales Branch, B.M.A.: Council.
- OCT. 7.—New South Wales Branch, B.M.A.: Organization and Science Committee.
- OCT. 9.—New South Wales Branch, B.M.A.: Clinical Meeting.
- OCT. 9.—Victorian Branch, B.M.A.: Council.
- OCT. 10.—Queensland Branch, B.M.A.: Council.
- OCT. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
- OCT. 14.—New South Wales Branch, B.M.A.: Post-Graduate Work Committee.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvi.

ADELAIDE HOSPITAL, ADELAIDE, SOUTH AUSTRALIA: Resident Medical Officers (2).

RENWICK HOSPITAL FOR INFANTS, SUMMER HILL, NEW SOUTH WALES: Acting Relieving Honorary Physicians (2).

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Mount Isa Hospital. Mount Isa Mines. Boonah Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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